

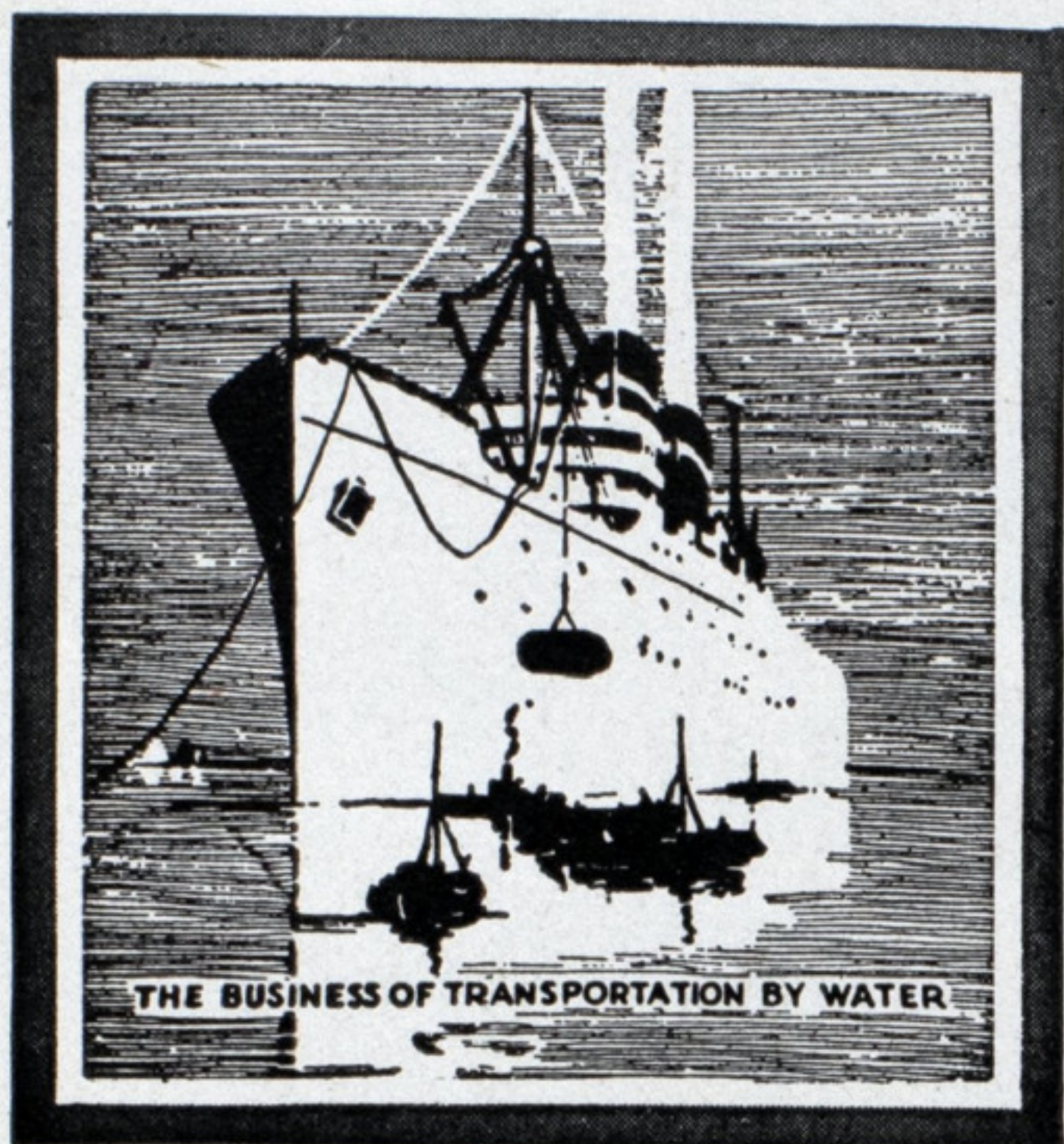
# Marine Review

*The National Publication Covering the Business of  
Transportation by Water*

CLEVELAND

FOUNDED 1878

NEW YORK



Published monthly by  
The Penton Publishing Co.  
Cleveland, Ohio, U. S. A.

Cleveland Office, Penton Bldg.  
A. H. Jansson, *Editor*  
H. O. Taylor, *Advertising Manager*

Chicago Office, 1347 Peoples Gas Bldg.  
L. C. Pelott  
Fred B. Pletcher

New York Office, 220 Broadway,  
Joseph Fuller, *Eastern Manager*  
E. C. Kreutzberg  
B. K. Price  
H. R. Simonds

Pittsburgh Office, 507-8 Oliver Bldg.  
S. H. Jasper  
W. G. Gude

San Francisco Office, 681 Market St.  
N. C. Nourse

Washington, D. C. Office,  
1020 National Press Building  
L. M. Lamm

London Office, Caxton House  
Westminster, S. W. 1  
Vincent Delpont

## CONTENTS

Vol. 61

August 1931

No. 8

	Page
President Hoover, New Dollar Liner, Special Insert	11-37
Capt. Robert Dollar—Frontispiece .....	11
S. S. President Hoover Sails on First Voyage .....	12
By A. H. Jansson	
Interior Arrangement and Decoration .....	14
Hull Construction and Characteristics .....	23
Auxiliaries, Equipment President Hoover .....	28
Main Propelling Machinery and Auxiliaries .....	31
Standardization and Sea Trials .....	35
Editorials .....	51
Our Commerce Must Not Depend on Foreign Lines....	53
Jefferson Meyers, U. S. Shipping Board, Interviewed By Robert C. Hill	
Suggest Building One Hundred New Cargo Ships.....	54
By Capt. C. A. McAllister	
Mariposa, New Matson Liner Launched at Fore River	55
European Shipping in Depressed Condition .....	57
By Frank C. Bowen	
Welded Barges of Cell Type Prove Practical .....	59
By H. R. Simonds	
United States Second in World Shipbuilding Volume	61
New Construction Ordered and Contemplated .....	62
Maritime Law—Late Decisions .....	64
By Harry Bowne Skillman	
Ports—Marine Business Statistics Condensed .....	65
Stevedoring and Dock Management Progress .....	66
Observations on Cost Saving on Cargo Handling By H. E. Stocker	
Deep Sea Pier at Vancouver of Modern Design By A. W. Earl	
Useful Hints on Cargo Handling .....	71
Personal Sketches of Marine Men .....	72
Sir David J. Owen, Gen. Mgr. Port of London By A. E. Fry	
Equipment Used Afloat and Ashore .....	74
Up and Down the Great Lakes .....	76

MARINE REVIEW is a member of the Audit Bureau of Circulations, Associated Business Papers Inc. and the National Publishers Association. Entered at the Post Office at Cleveland, Ohio, as Second Class Matter, under the act of March 3, 1879. Copyright 1931 by The Penton Publishing Co., Cleveland, O.



Subscription United States and its possessions, \$3 per year; Canada \$4.00; Great Britain and other Foreign Countries, £1:0:0. Single copies 35 cents. Back numbers over three months 50 cents. Cable addresses: Penton, Cleveland, and Irotrapen, London.

*The A. B. P. is a nonprofit organization whose members have pledged themselves to a working code of practice in which the interests of the men of American industry, trade and professions are placed first—a code demanding unbiased editorial pages, classified and verified paid subscribers, and honest advertising of dependable products.*



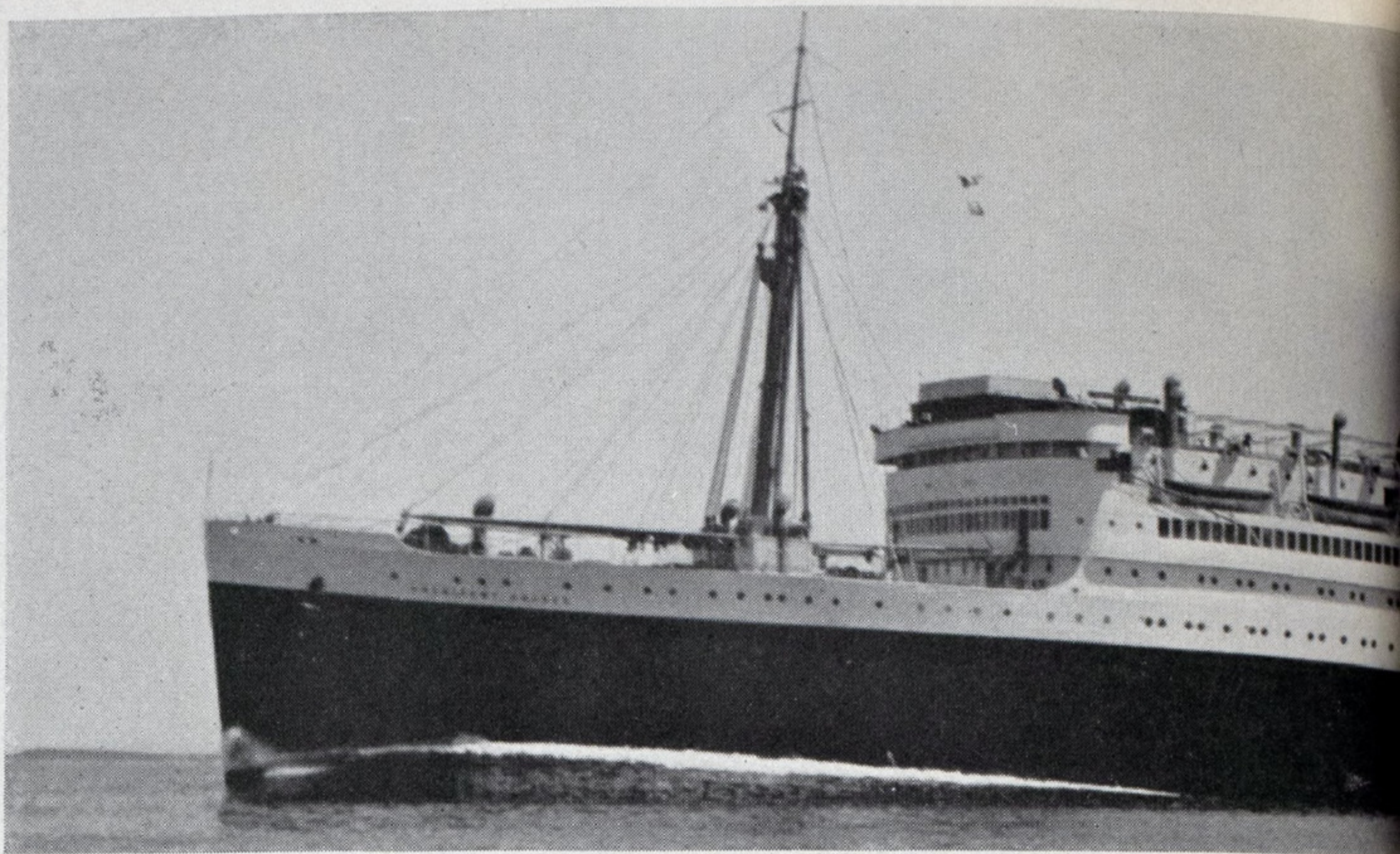


Capt. Robert Dollar



## S. S. PRESIDENT HOOVER

**N**O other legislation to promote our Merchant Marine has been of such direct and immediate benefit as the two acts of 1920 and 1928. A persistent continuation of the policies laid down with strengthening amendments to cover freight as well as passenger services should receive the support of all Americans.



*S.S. President Hoover—Taken off Rockland, Me., June 1*

**S**AILING of the new Dollar liner the S. S. PRESIDENT HOOVER from New York, Aug. 6 for the Orient marks the beginning of a new era in the checkered history of the American merchant marine. Favorable legislation alone would not have made this result possible. Any action of the government in upbuilding the merchant marine is dependent for actual results on the experience, courage, energy and initiative of private agencies. The Dollar line, under the leadership of Capt. Robert Dollar and his son, R. Stanley Dollar, demonstrated these qualities in its purchase and successful operation of the "President" class shipping board vessels in a round-the-world service, an untried and extraordinarily bold venture.

Here is a company of demonstrated ability who knows exactly what it means to operate ships in foreign service, a practical, hard-headed organization whose ways and means of pro-



**R** STANLEY DOLLAR, President of the Dollar Steamship Lines, who has shown his faith in the future of the American merchant marine by undertaking the building of these two large fast vessels in order to give a service unsurpassed by any foreign line

## S. S. PRESIDENT Sails on Maiden

By A. H.

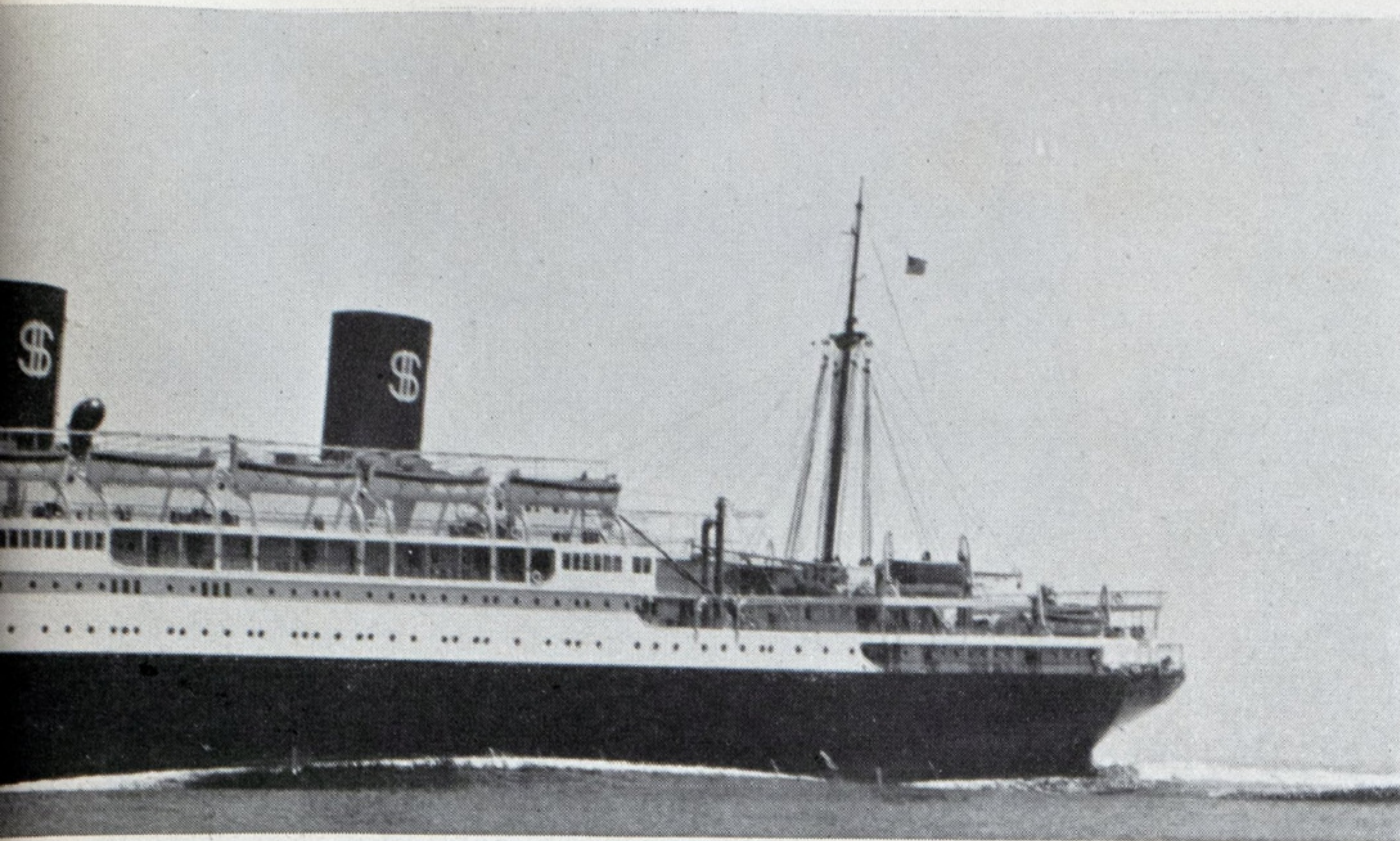
moting an American merchant marine might well be paraphrased in the saying of the Continental soldier who believed in trusting God, but also and at the same time in keeping his powder dry.

On the basis of mail contracts received and with the help of the construction loan fund the Dollar line after several months of preliminary study on Oct. 26, 1929, signed a contract with the Newport News Shipbuilding & Dry Dock Co. for the construction of two large, fast ocean liners. The shipyard has established an enviable record not only in the quality of work, but in the speed with which it has been carried out. The contract called for the delivery of the first vessel, the PRESIDENT HOOVER, Oct. 26, 1931, and the second vessel the PRESIDENT COOLIDGE, was to be delivered Feb. 26, 1932.

The S. S. PRESIDENT HOOVER was actually delivered on July 11, three and one-half months in advance of the contract delivery date. It is now expected that the second vessel, the S. S. PRESIDENT COOLIDGE, will be delivered Oct. 1, 1931, almost five months in advance of the contract delivery date. This record is due to a thoroughly well equipped yard and the efficient organization built up by Homer L. Ferguson, president and general manager.

A beginning of the rise of the Dollar line as a great shipping company goes back 30 years





*During Standardization Trials When Making 22.2 Knots*

# NT HOOVER

## Voyage Aug. 6

nsion

when Capt. Robert Dollar bought his first steamer, the NEWSBOY. This vessel carried a crew of 11 men and was 120 feet long, 30 feet beam and 9 feet deep. The S. S. PRESIDENT HOOVER, now lying at New York being groomed for her maiden voyage, carries a crew of 324 men, is 654 feet 3 inches in length overall, 81 feet beam and 52 feet deep. On her sea trials she developed a high speed of 22.2 knots using 32,823 shaft horsepower. The estimated cost of this, the largest and highest powered merchant vessel thus far built in the United States, is \$8,000,000, representing with her sister ship, the S. S. PRESIDENT COOLIDGE, a total capital investment of \$16,000,000, one-quarter of which must be advanced by the owner. Two more similar vessels are to be built in due course.

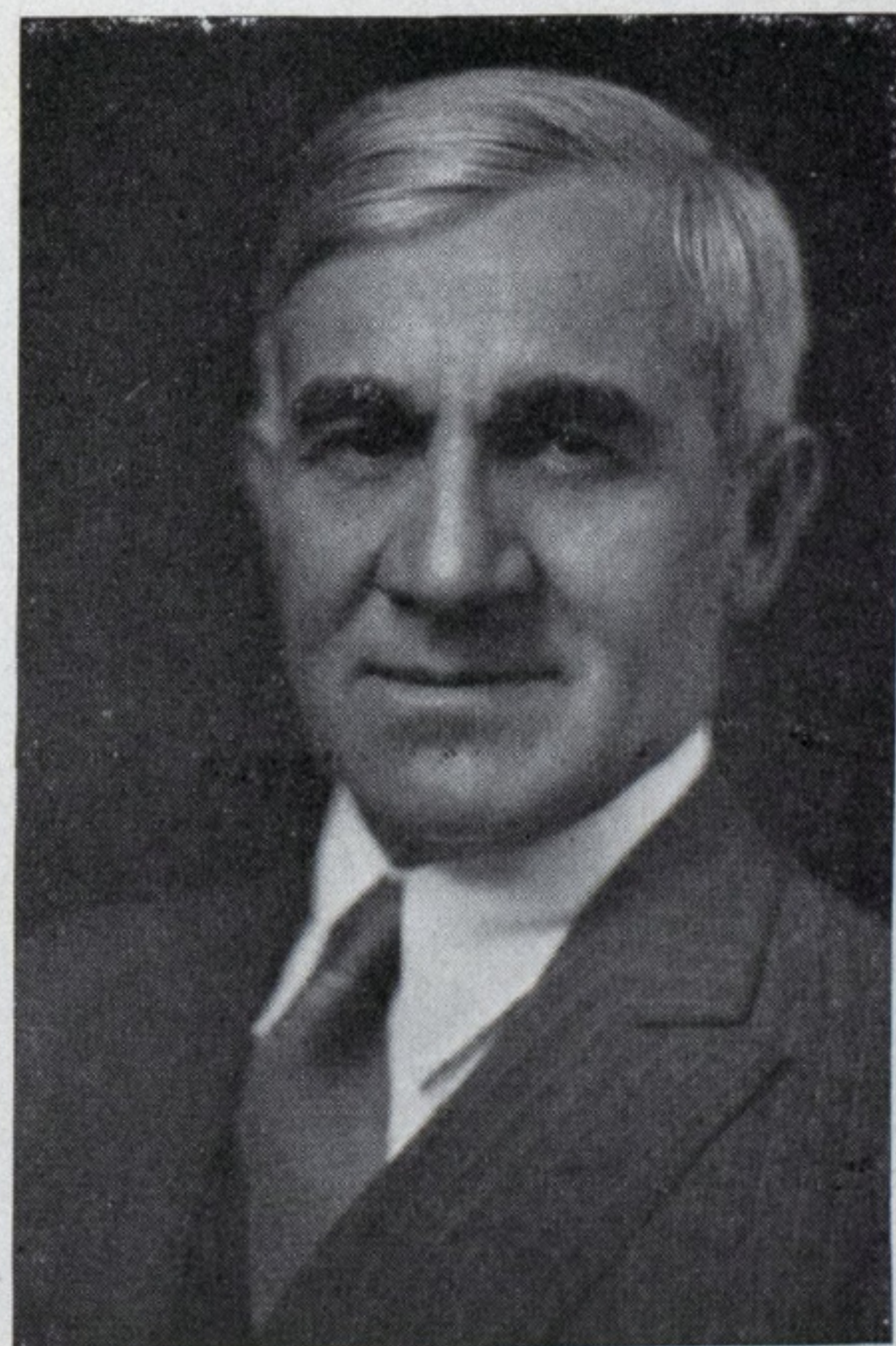
The life of Capt. Robert Dollar seems to be without a parallel. He is now entering on his eighty-eighth year and as recently as July 15 made a public address in which he urged attendance at the coming convention of the Pacific Foreign Trade council in Oakland, Calif., Sept. 14-18. Among other things he said, "Every man and woman in this country is either directly or indirectly interested in foreign trade." He is known and honored all over the world for his great work in building up trade. He probably has more influence in

**W**E are too apt to look upon the rest of the world as static, that we alone are progressive, constantly moving on and ever increasing our needs and standard of living. The changeless East is an outworn phrase. Our markets in the Orient will continue to expand and we must be adequately prepared.

China than any other American. His dealings with the Chinese has always been based on a spirit of fairness and understanding and as a consequence he can have about anything he wants in China. In his eighty-seventh year he made his thirty-seventh business voyage to the Far East.

So with an old Spartan at the head and an organization including 10,000 employes extending to the four corners of the earth and on all the seven seas, there is reason for confidence that this newest and largest American vessel, pride of our merchant marine, has been put in capable hands and that she will be given every chance to make good. In the following pages will be found a record of this latest achievement in American shipbuilding, which it is hoped will inaugurate a period to be known in history as the renaissance of the American flag on the high seas.

**H**OMER L. FERGUSON, President and General Manager, Newport News Shipbuilding & Dry Dock Co. under whose leadership this largest and highest powered American merchant vessel has been delivered three and one-half months in advance of contract date

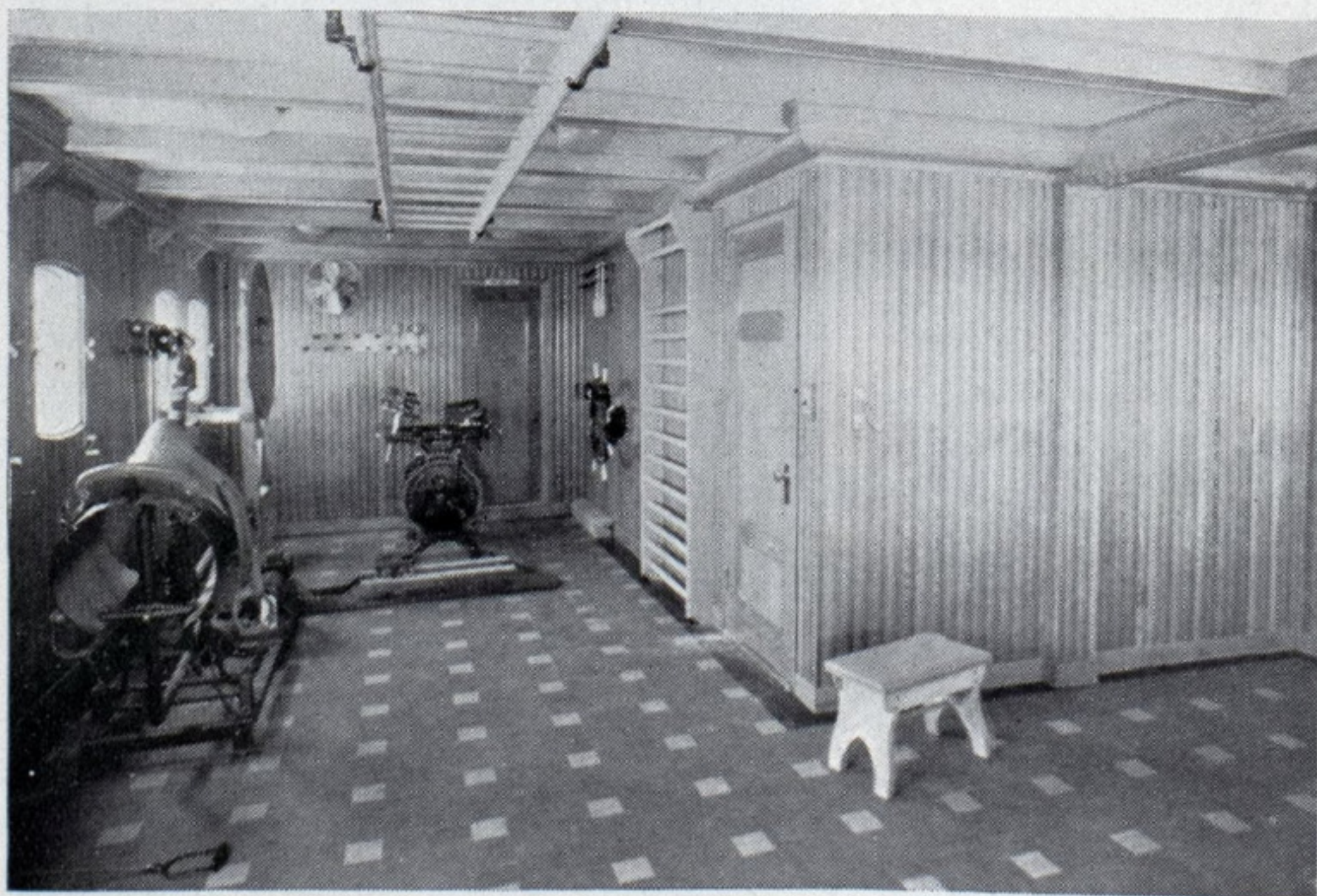




# Interior Arrangement and Decoration

**E**FFICIENT shipowning is an aid to efficient shipbuilding, and shipowner and shipbuilder work to best advantage for their own profit and for the success of shipping when there exists close and cordial co-operation between them. In this respect the design of the PRESIDENT HOOVER and of the PRESIDENT COOLIDGE serves as an outstanding example. The Dollar Steamship lines offered its ideas as to size and equipment of the vessels desired and permitted the Newport News Shipbuilding & Dry Dock Co. to work out the problem. Representing the shipbuilder, Carl E. Petersen worked closely with the directors and operating officials of the line at San Francisco in order to arrive at a design of vessel especially adapted to the requirements of this service. After award of the contract detailed plans were also developed in cooperation with the owner. This work was carried out under the direction of H. F. Norton, naval architect and J. F. Nichols, chief engineer at the shipyard. Interior architecture and decorations and furnishings were conceived and carried out by A. F. Marten Co., San Francisco under the direction of F. E. Baldauf of that company.

In the building of the PRESIDENT HOOVER and PRESIDENT COOLIDGE American shipbuilding has attained a new high point of achievement for these vessels are the largest mercantile ships thus far built in the United States. The outstanding importance to the nation of their advent was recognized in their distinguished sponsorship at launching, Mrs. Herbert Hoover acting for the S. S. PRESIDENT HOOVER and Mrs. Calvin Coolidge for the S. S. PRESIDENT COOLIDGE.



Gymnasium

*Passenger Elevator of Modern Design Installed on the S.S. President Hoover for the Convenience of Passengers. Self Operating Electric Push Button Type*



Distinctive American features characterize these vessels and outstanding among these is electric propulsion which is truly a great contribution to modern marine machinery by an American engineer. Not only are these vessels the latest of a rapidly growing list of electrically propelled vessels, but they also have the highest powered electric plant applied to an American merchant ship. They are the first all-electric ships to enter the transpacific trade. The electric plant on the PRESIDENT HOOVER was supplied by the General Electric Co., while the one on the PRESIDENT COOLIDGE was supplied by the Westinghouse Electric & Mfg. Co. Vessels with turbine electric machinery are relatively free from vibration which is a real point of popularity with travelers. A detailed description of the propelling machinery and auxiliaries is given later in this section.

## Public Rooms Are Unusually Spacious

**A**NOTHER American feature is the extensive bathing facilities found on these ships. The number of private baths and toilets in proportion to passengers carried is greater than in any vessel afloat. All of the 112 first class state-rooms have a private bath or are directly connected to one. Baths are all tiled in attractive colors and are fitted with plumbing fixtures of substantial modern design. For outdoor bathing there is a large fully tiled open-air swimming pool with sand beach and sun decks adjoining.

Public spaces are impressive because of their extent and the wide use of special woods in the interior design. Practically all of the enclosures on the promenade deck are for the use of passengers and comprise library and reading room, lounge and ballroom, smoking room, lobbies and marine tea garden. Spaciousness is





Above, Lounge, First Class

## Passenger Spaces



Above, Living Room and Veranda, Special Suite



Above, Dining Room, First Class



Above, Another View of Lounge, First Class

Below, Bedroom Special Suite, First Class





indicated by the dimensions; the lounge is 51 by 48 feet clear of any obstructions, the smoking room is 48 by 48 feet and the tea garden or dancing pavilion, 29 by 78 feet is also free of pillars. All of these rooms have a deck height of 13 feet 6 inches. Public rooms and stair lobbies and the special class public spaces are attractively designed with the use of special woods, which is a feature.

### Many Kinds of Rare Woods Used

**A**MONG the woods used are many little heard of. The following woods have been used: avodire, framire, bubinga, eroke, African mahogany, padouk and teak from Burma, satin wood from India, harewood from England, prima vera from Central America, mahogany from the Philippine islands, circassian walnut from Russia, zebra wood from Brazil and domestic woods, such as oak, walnut, cherry, and maple. The first class dining room on the upper deck with a deck height of 10 feet 3 inches and a large open well over the center makes an exceptionally attractive high ceiling room. A stock quotation board room is another of the modern features.

In addition to propulsion, electricity is used for all cooking appliances, heating, motive power for ventilation fans, and various deck and engine room auxiliaries as well as for lighting and general power purposes.



*Bathroom, First Class*

The design of these two new "Presidents" meets the special requirements of transpacific and around the world service. It not only embodies the ideas of the owner based on extensive experience in that service, but it also anticipates future requirements. With this care in design and the thorough experience of the operator it is confidently expected that these vessels will quickly

achieve popularity.

They were designed to meet specific requirements for speed, deadweight and cubic capacities, and passenger accommodations; also to comply with the requirements of the postal service for class 2 mail carrying and United States navy requirements for auxiliary service, United States public health service requirements for rat proofing and fresh water piping. The new vessels fully comply with the United States steamboat inspection rules and regulations, international convention (1929) on safety of life

at sea, and regulations and the rules of the American bureau of shipping under whose special survey they have been built. All detailed plans were prepared by the shipbuilder and the responsibility for meeting all of the foregoing requirements is entirely his.

Accommodations are provided for a total of 988 passengers, over 30 per cent in first class. There are 112 first class staterooms serving 214 or 307 individual passengers; 39 special class staterooms for 133 individuals; 23 third class staterooms for 170 individuals; and steerage accommodations for 378 persons. New materials, new color combinations and modern technical devices and developments have been utilized to express our new convictions and conceptions of forms and styles. These factors have been consistently applied in the plan of decorating and furnishing including treatment of walls, floors, floor coverings, furniture, draperies, and lighting fixtures. Instead of merely repeating the designs of former periods, use has been made of the products of our machine age combined with the highest quality and type of creative hand work.



*Individual Refrigerator*

In carrying out his design the interior architect and decorator met an admirable spirit of cooperation on the part of the owner and shipbuilder, permitting of freedom of expression which would have otherwise been impossible. In collaborating with the shipbuilder and the owner in the development of the interior arrangement, the architect and interior decorator made a thorough study and analysis of the standards of living and the demands of the traveling public with the view of incorporating into his plan the most practical and up to date equipment to meet the needs of service in both tropical and frigid climates in the vessel's regular run and also for world cruising.

### Miniature Models of Public Rooms

**D**ECK plans were developed to suit the allotment of spaces for public rooms, suites and staterooms based upon a survey made by the architect and interior decorator, the A. F. Marten Co. In order to obtain the best that could be produced miniature models were made of a number of public rooms and several types of staterooms were set up in full size in the workshops of the company at San Francisco. A complete interior architectural plan was developed





Above, Soda Fountain Room

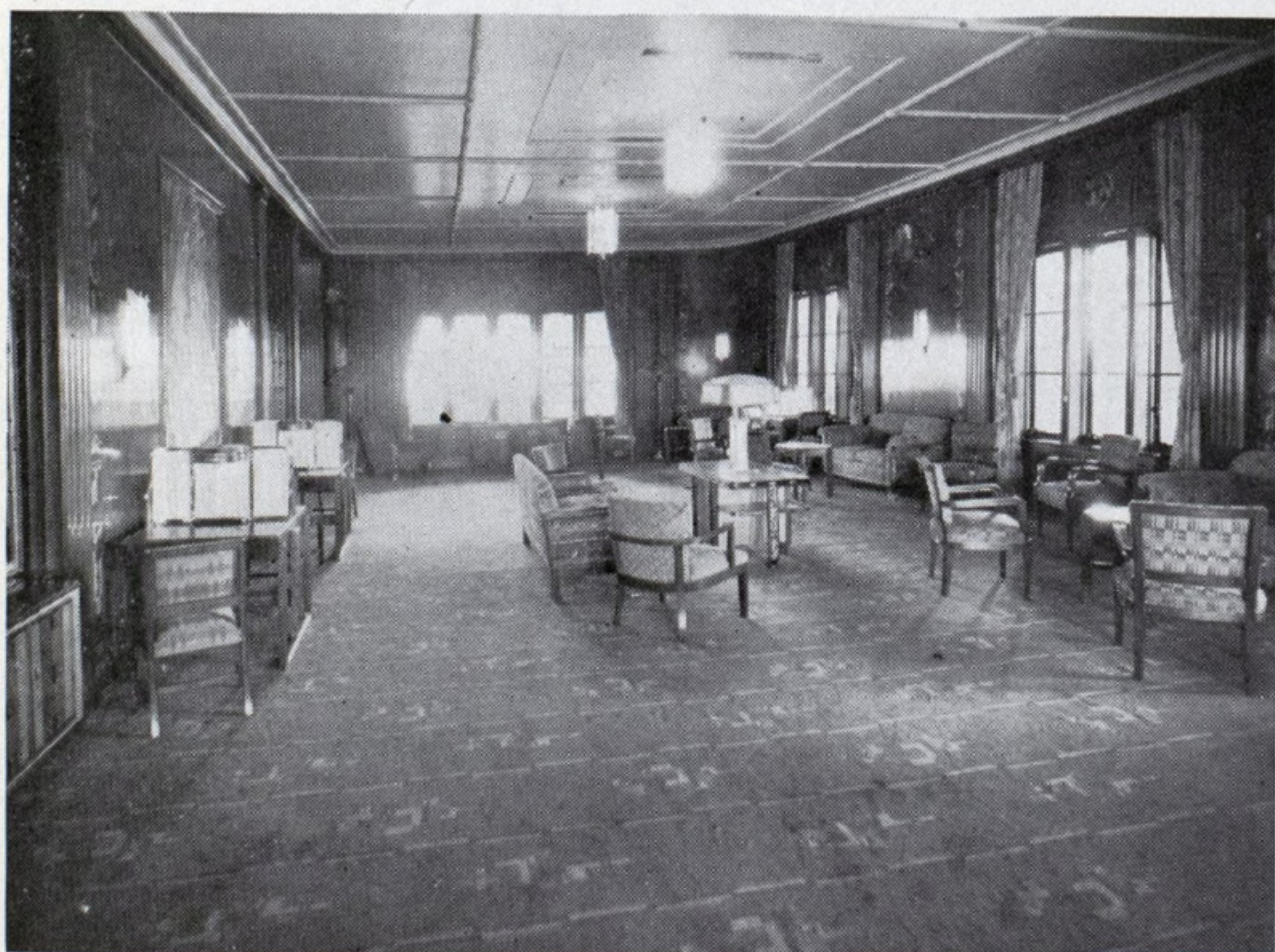
## Public Rooms, First Class



Above, Smoking Room, First Class



Above, Forward Lobby Promenade Deck



Above, Library and Writing Room



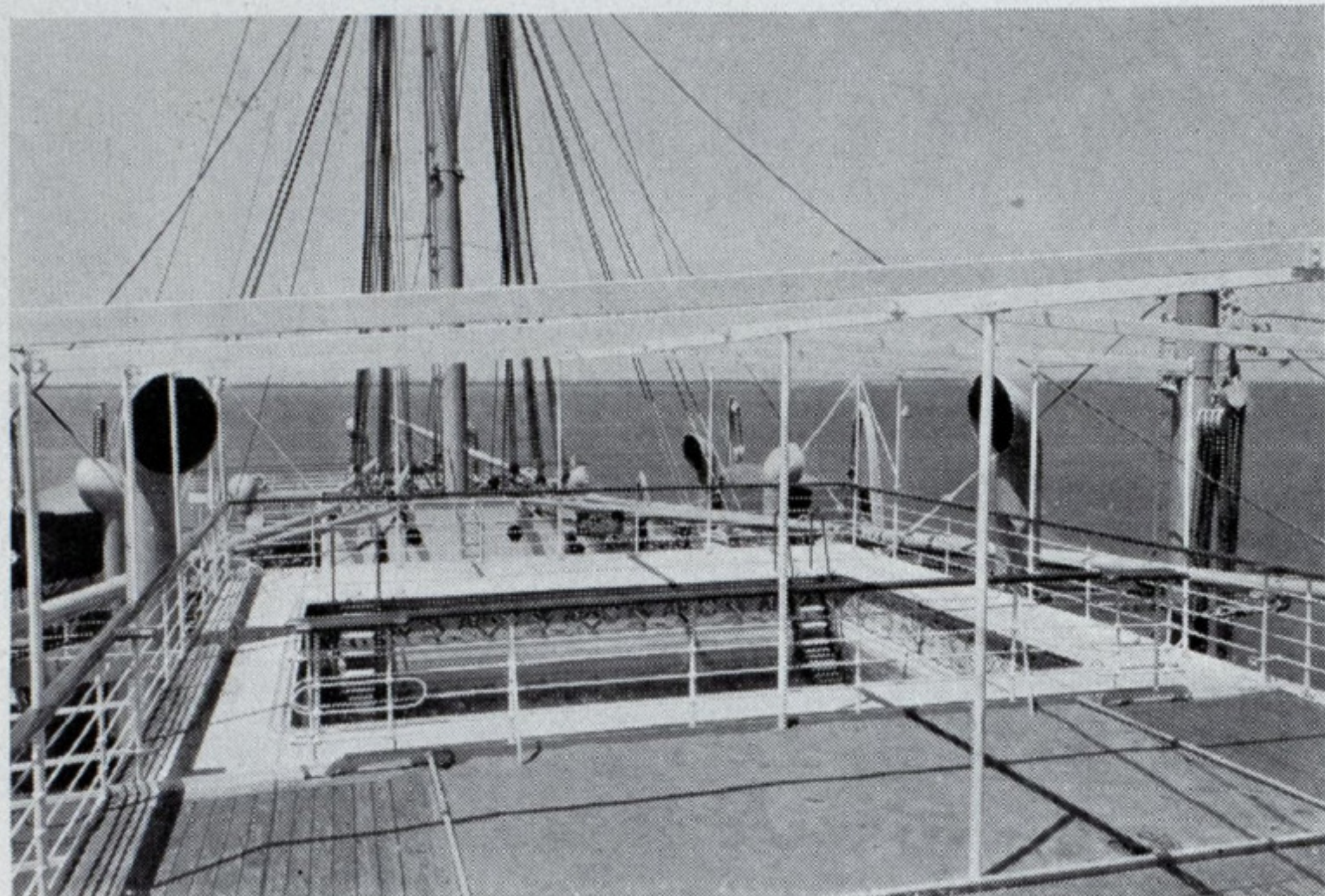
Right, Veranda, First Class



## S. S. PRESIDENT HOOVER

specifying all of the materials for the interior trim.

Equipped with this plan F. E. Baldauf, vice president of the A. F. Marten Co., went to the shipyard to consult with the builder. Returning to San Francisco detailed drawings were made and sent to the shipyard and in addition full size samples of panelings, carvings, wood



*Tile Swimming Pool Aft Deck*

selections and samples of finishes were prepared for all of the important public rooms. Practically all of the furniture and furnishings were produced in the workshops of the interior decorator in San Francisco and shipped to the yard and installed. The accompanying illustrations indicate the fine results obtained.

Located midships on the bridge deck aft of the main entrance lobby there are four deluxe suites, two on each side, adjoining each other. Each suite contains a private veranda, sitting room, bedroom and bathroom; and for each pair of suites there is a large trunk room directly across the passage, in which lockers are fitted for the occupants of each suite. One suite on each side is modern in design and the other French. The walls of the veranda and sitting room of each "suite moderne" are paneled in padouk (a wood of the mahogany family from Burma) and the bedroom has painted paneling with African mahogany trim. The veranda and sitting room of the "French suites" are paneled in prima vera and the bedroom has painted paneling.

### Sumptuous Public Room Interiors

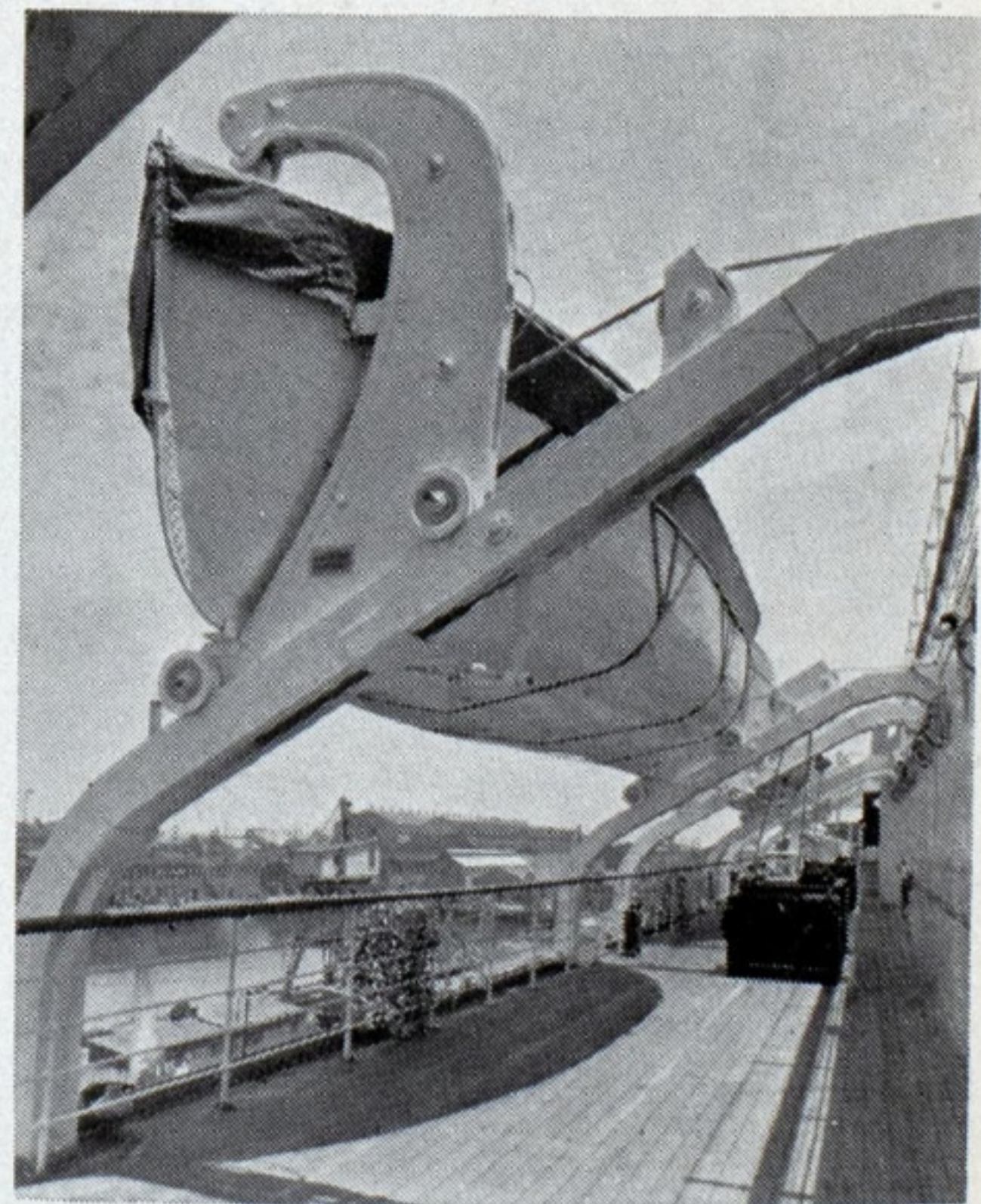
**T**HE library and writing room is on the forward end of the promenade deck. With increased deck height it has a lofty effect emphasized by the absence of pillars. The walls are flush paneled in mottled African mahogany and the wide panels have their side margin decorated with vertical inlays in color each composed of the following woods: American and circassian walnut, curly maple, yellow poplar, harewood, bubinga, tiger wood, zebra

wood and vermillion. The paneling is set off by wide pilasters of African mahogany, ornamented with shallow fluting and topped by hand carved capitals. There is a narrow cornice of mottled African mahogany crowned by a deep cove mold of painted white pine. All doors have African mahogany finish and trim. The ceiling of Vehisote panels is enameled and decorated with carved ornamentation and is fitted with polished brass grilles for exhaust ventilation. The metal frame windows are of single casement type, five on each side and in three groups of three each across the forward end.

A large decorative mural painting by A. F. Marten, of deep sea marine life is recessed into the paneling of the aft bulkhead. An extensive library is installed in recessed bookcases inlaid in rare woods at each side of the painting.

### Woods and Glass Effectively Used

**T**HE library is furnished with sofas, arm-chairs, upholstered chairs with mahogany frame and tables. Writing tables are of mahogany with frosted glass screens and concealed lighting, and there is a tall reading lamp, on a brass standard with silk shade in each corner of the room. Light is provided by chandeliers of carved and frosted glass with polished brass fittings and wall bracket lights of similar design in addition to a carved glass pedestal lamp on the center table with a silk shade. Draperies of heavy silk brocade in light greenish blue with a pattern repeating the colors used for covering complete the effect. The floor is covered with an especially designed high pile Saxony wool carpet of green and shades of terracotta, lavender, light green and gold. This first class lounge lobby like the lounge itself is of contemporary treatment in design with special architectural



*Lifeboats and Gravity Davits*

effect obtained by the use of hardwood paneling and trim. Stair and elevators lead up to this space on the promenade deck. The walls are finished throughout with West African avodire, a pale yellow wood with a diagonal rippling grain, in full height flush panels bordered by sunken panel bands of satinwood trimmed with yellow poplar moldings. Columns and

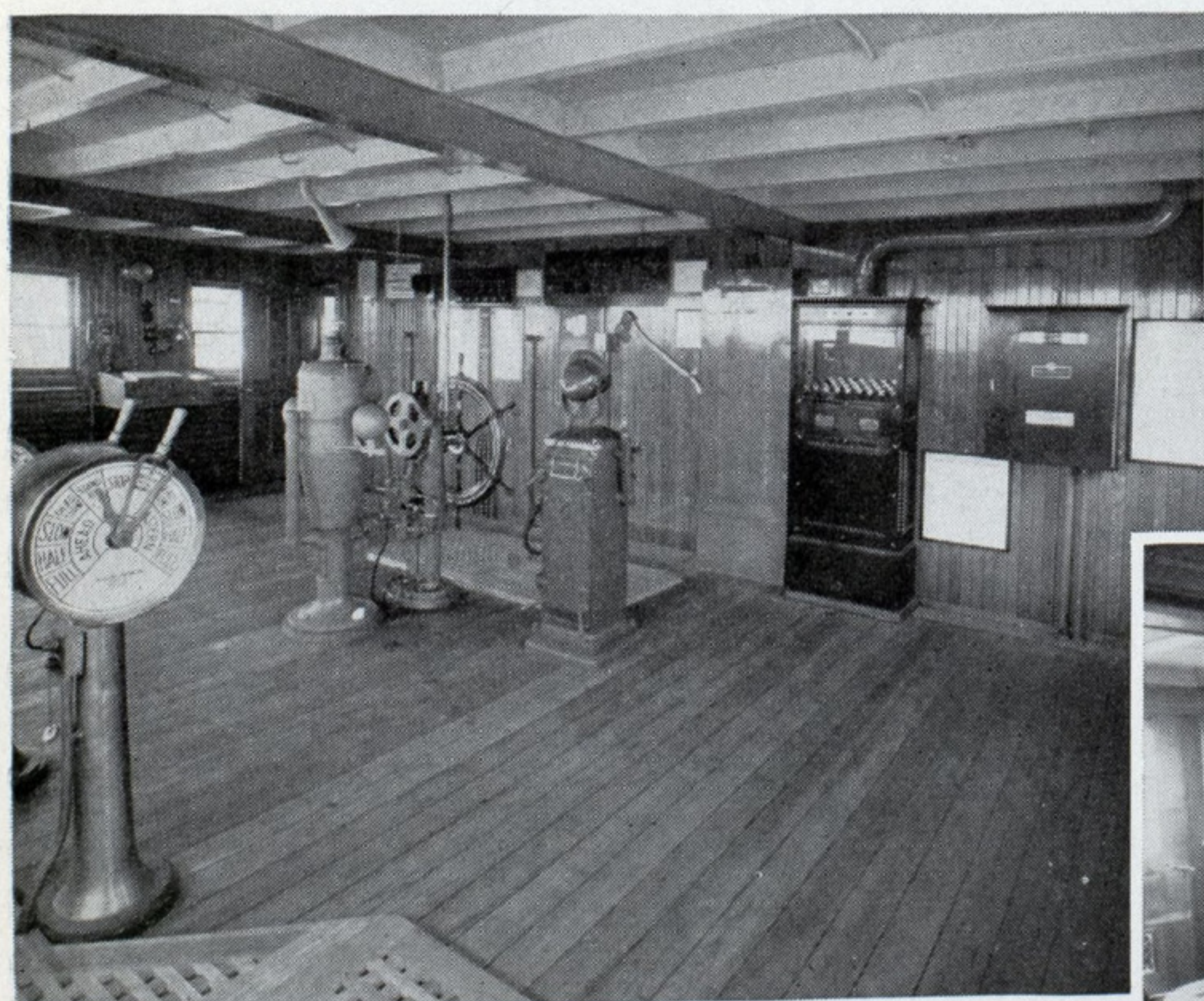




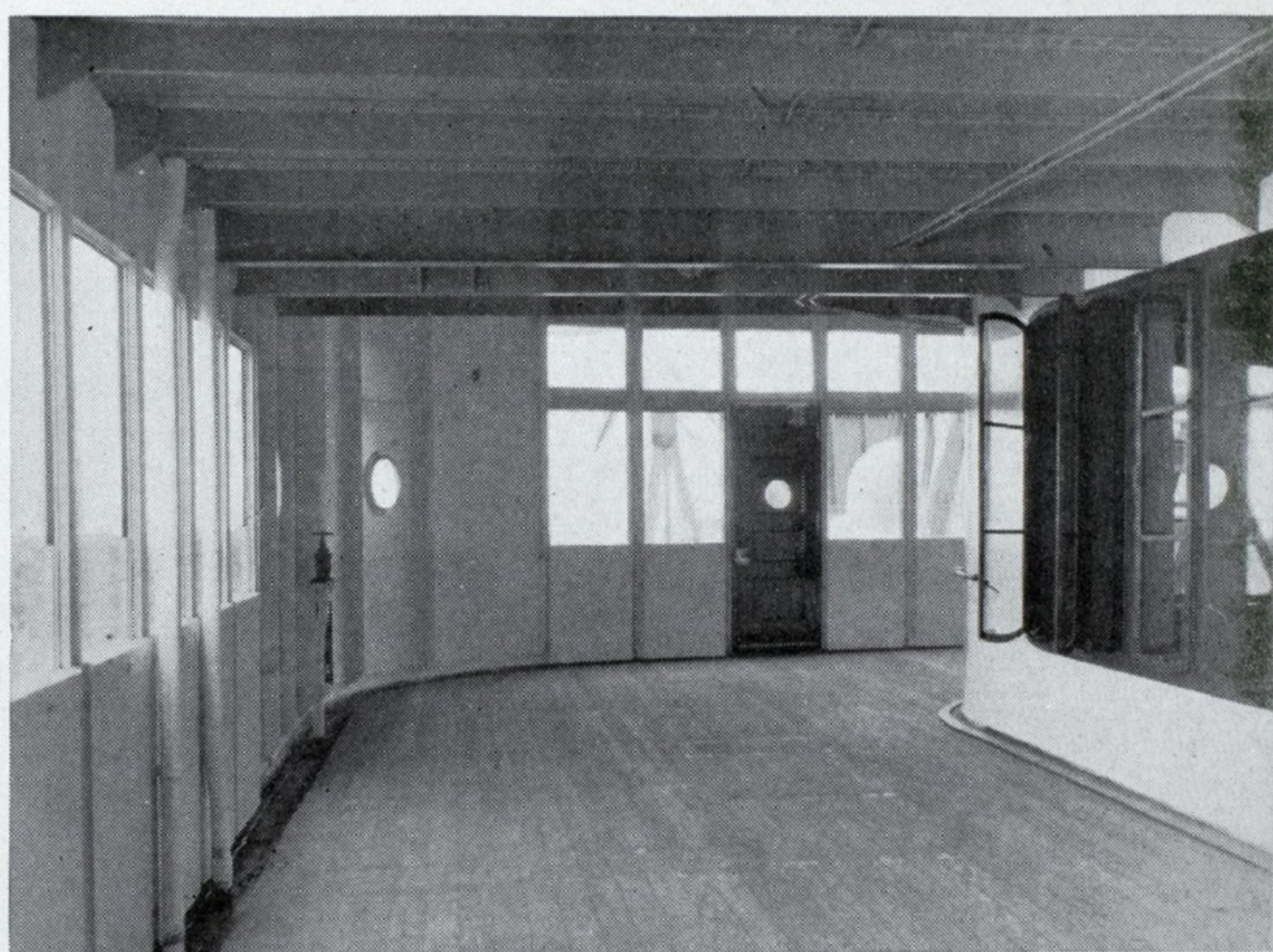
Above, Forward Lobby A Deck

Left, Children's Playroom

## Modern Interior Arrangements



Above, Pilothouse



Shelter Windows Forward End Promenade Deck

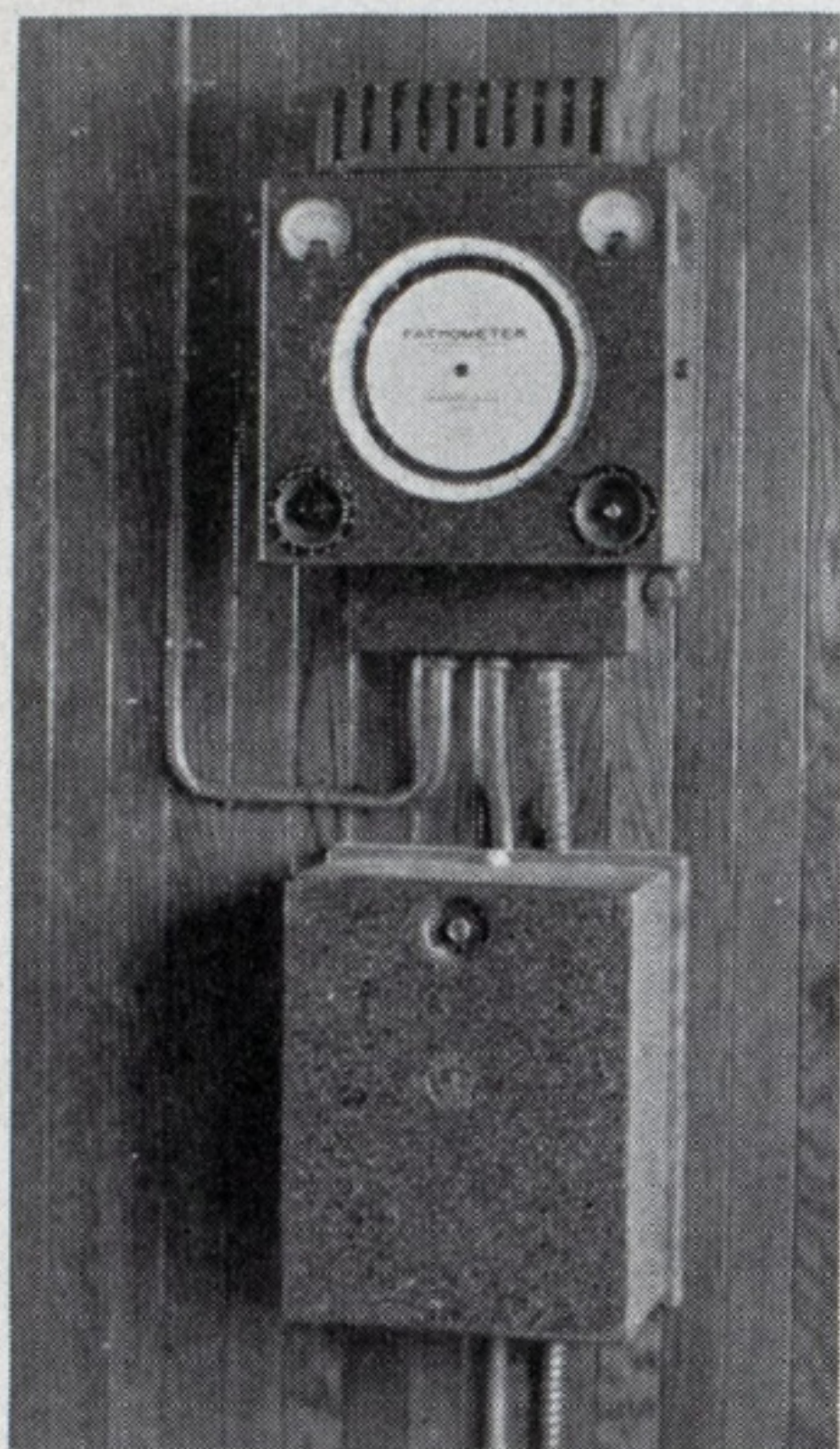


Right, Smoking Room, Tourist Class



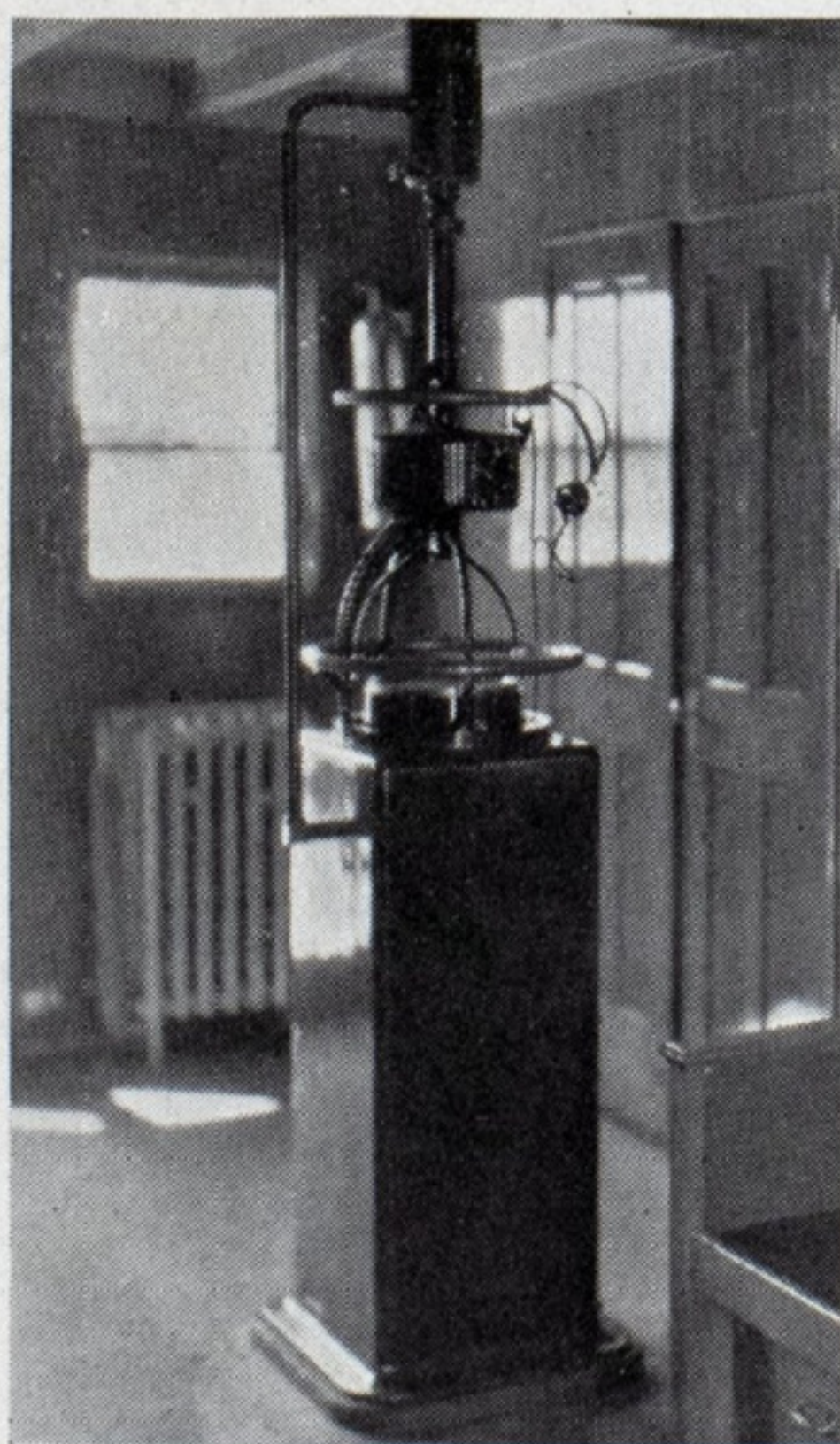
## S. S. PRESIDENT HOOVER

pilasters are of African mahogany decorated with inset prima vera molding and gold leaf, and the girder casings and cornices are also of the same character. In the center of the forward side there is a clock, with dial inlaid, in the paneled balustrade of the stair to the boat



*Depth Finder*

deck lobby and below it is a fountain of running fresh water in a recess finished in mosaic tiling. At the top of the light well over the center of the lobby there is a shallow dome with a flat skylight of cathedral glass set in a polished brass frame. Special light fixtures of tubular design with polished gold finish and white glass are fitted between panels in sides and ends of well. Forward of this lobby connected with large openings is the first class



*Radio Compass*

lounge, a room of huge dimensions emphasized by the freedom from columns, high ceiling and large full height skylight dome. The walls are full panel throughout in enameled plywood in a subtle shade of chartreuse and are set off by gold leafed applied moldings with base board of prima vera and narrow carved cornice of the same material, faced with satinwood at the top and crowned by deep composition moldings.

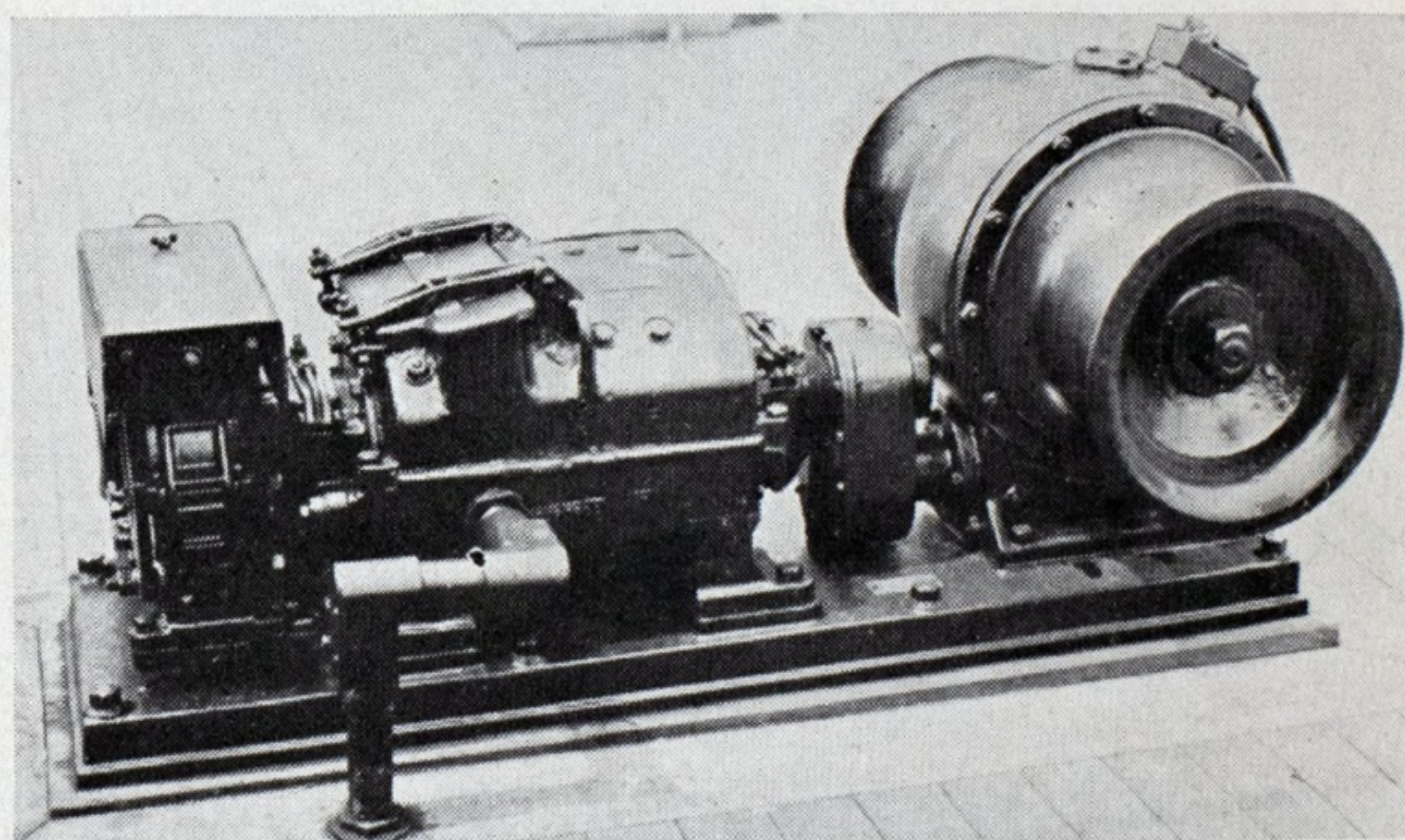
The satinwood pilasters are of striking design with inset carved panels of prima vera and fluted capitals of the same wood. Wide doors are hinged in three sections glazed with horizontal panes of clear glass and have prima vera finish and carved trim. The windows are of special casement type and are arranged in groups of three with double windows in the middle and single windows at each side. For entertainment purposes a portable stage is arranged to be

installed in a recess in the forward wall in the room. In this recess are pockets for curtains at each side, a motion picture projection screen on a roller overhead and an invisible pivoted panel door at one side for entrance to the stage.

The ceiling is flush and is divided by narrow

molded panel strips decorated in gold leafed composition around indirect lighting fixtures which are of sunburst design with finish of dull and polished gold and dull chromium plate. In the light well above the center of the lounge there is a large dome with skylight of leaded glass. The sides of the dome are curved and ornamented with narrow vertical ventilation grilles of polished brass.

The lounge is furnished with large overstuffed chairs and sofas upholstered in modern fabrics and with numerous occasional tables of various designs all inlaid in rare woods some of them further ornamented with carving and gold leaf. A richly inlaid piano is placed near the stage. Between each pair of windows at the sides of the room, there is a tall scored mirror, in African walnut frame with carved and gold leaf ornament, above a cabinet of the same wood with doors heavily ornamented with bas relief in gilt. A large floor lamp with brass standard and gold silk shade stands in each corner of the room. Draperies of heavy silk bro-



*Winch for Retrieving Lifeboats*

cade in tones of gold and pale green are hung at the windows.

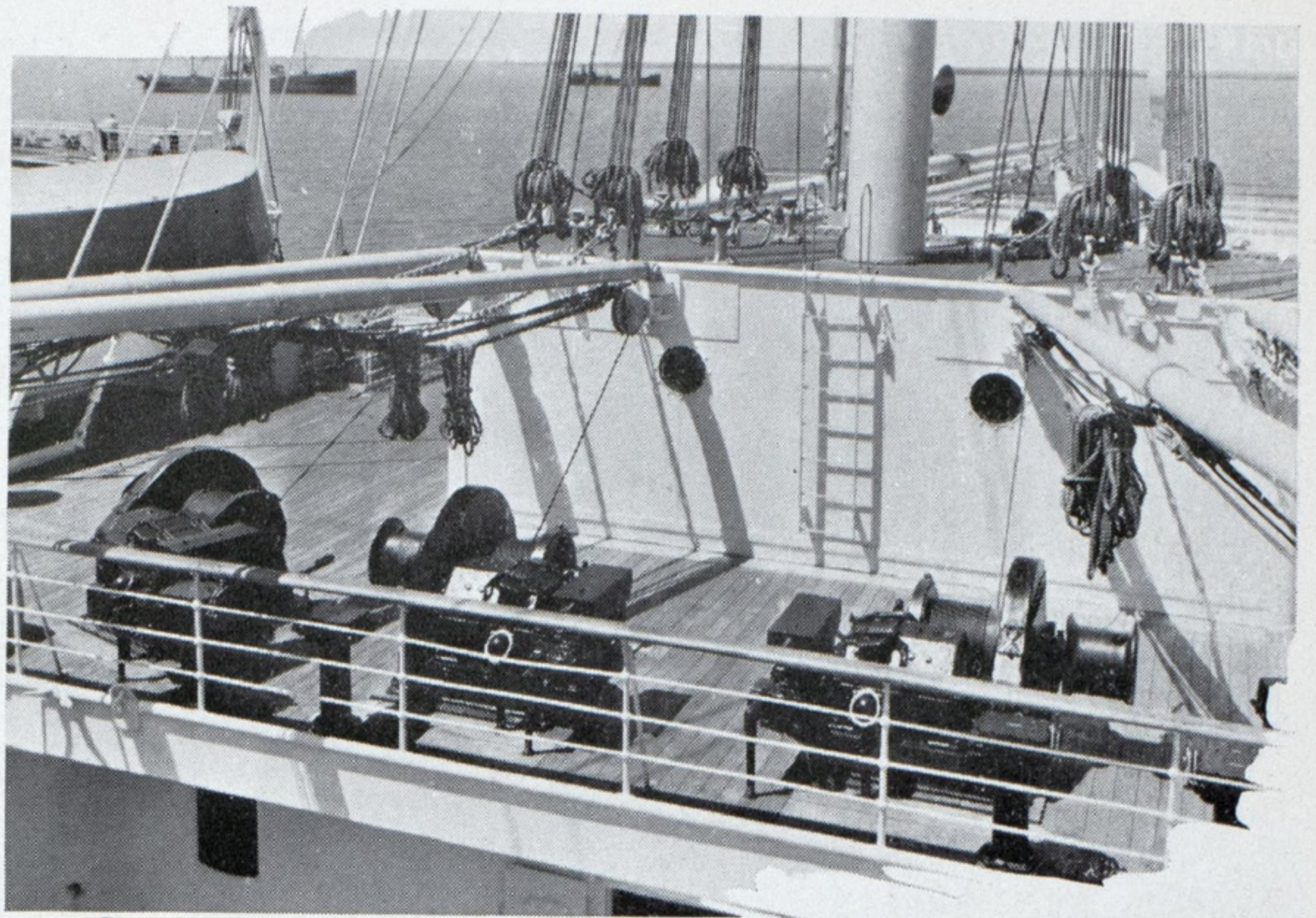
### First Class Smoking Room

ONE of the largest and most impressive spaces on the ship is the smoking room finished in modern architecture, completely paneled at sides and overhead in West African bubinga with a rich dark red mottled grain. All structural columns in this room have square paneled casings with carved corner posts. Entrance doors are glazed full height with a partly frosted glass panel set between grilles of polished brass; the doorways are surrounded by wide flaring casings of special design with matched veneer panel above. Windows are of double casement type and are installed in flush paneled recesses. At the after end of the room there is a verde antique marble fireplace equipped with electric Magicoal grate and ornamented with a smoke hood of dull hammered stainless steel edged with cast brass. The forward end of the room is decorated with an Au-



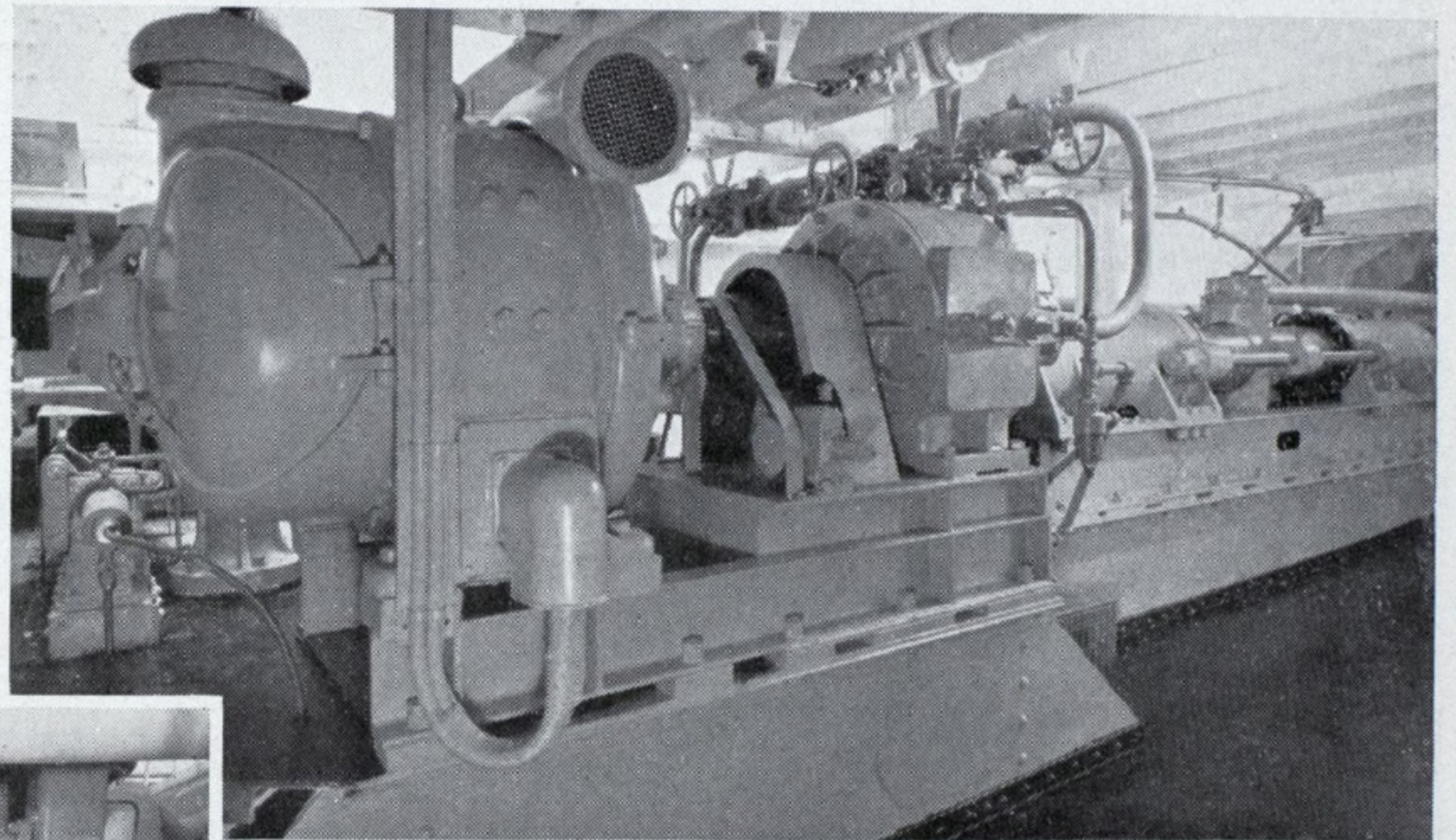


Above, Galley, First Class

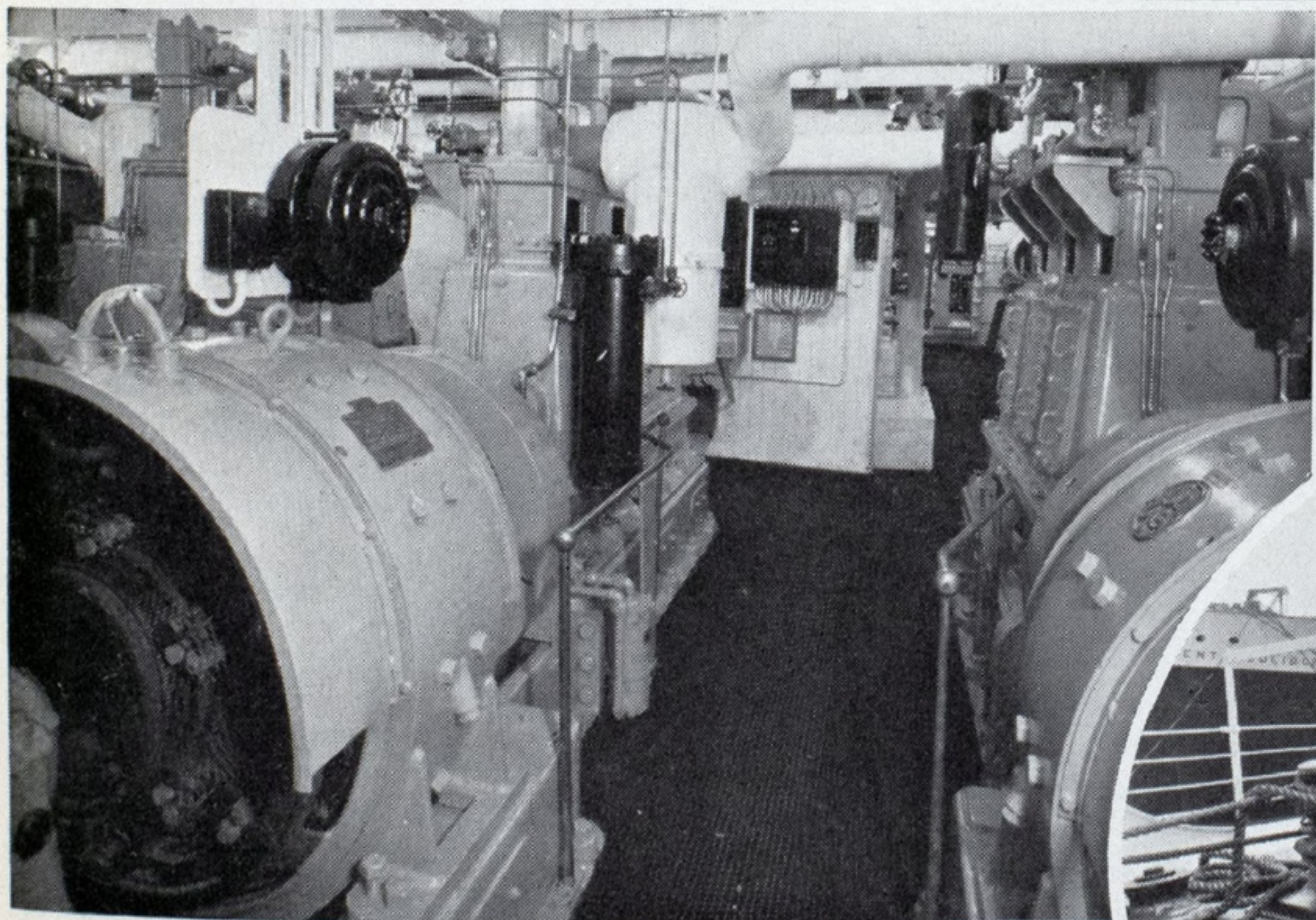


Above, Electric Cargo Winches

Below, Electro-hydraulic Steering Gear



## Miscellaneous Auxiliaries

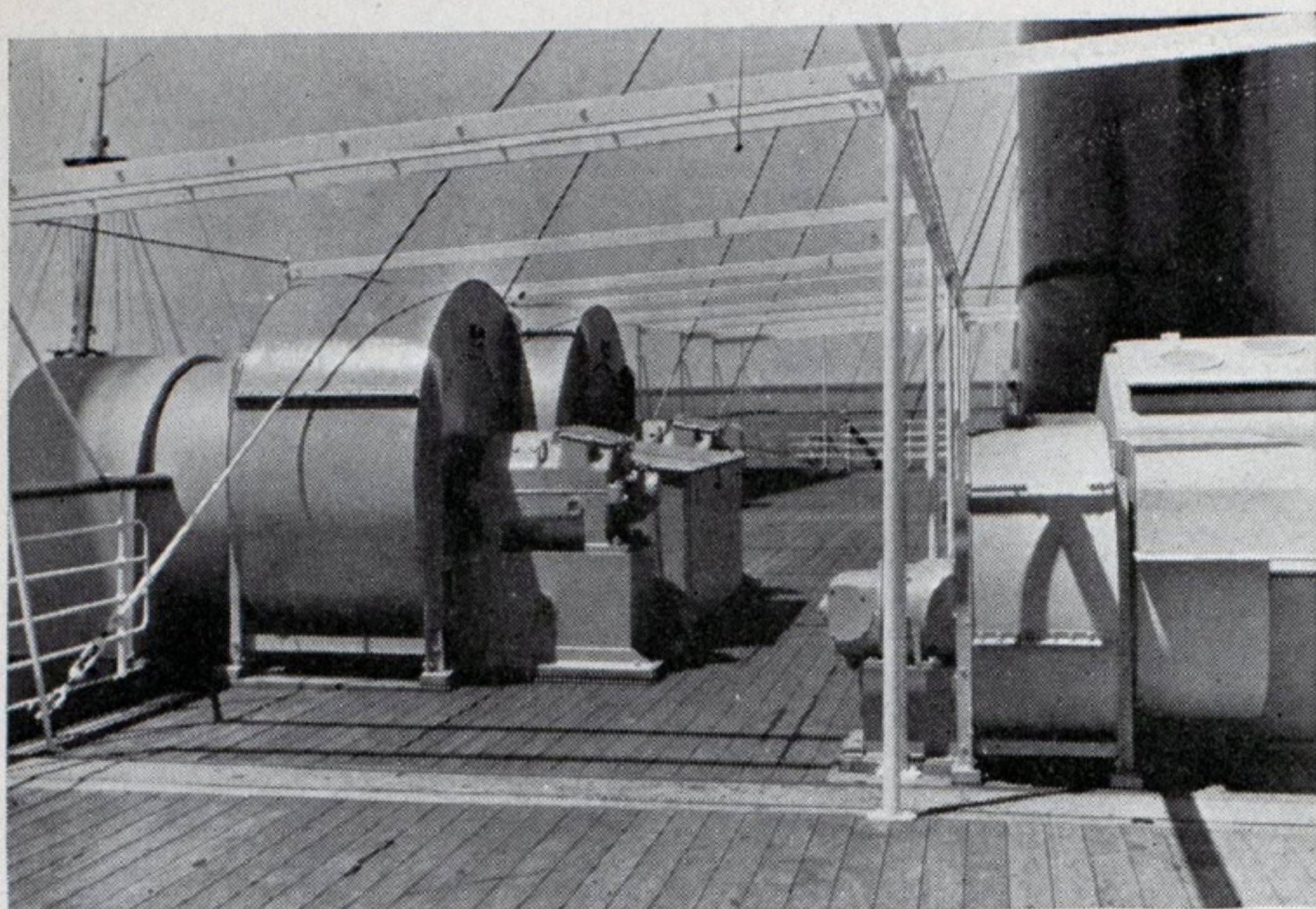


Electric Driven Compressors for Refrigeration



Right, Steam Spur Geared Windlass



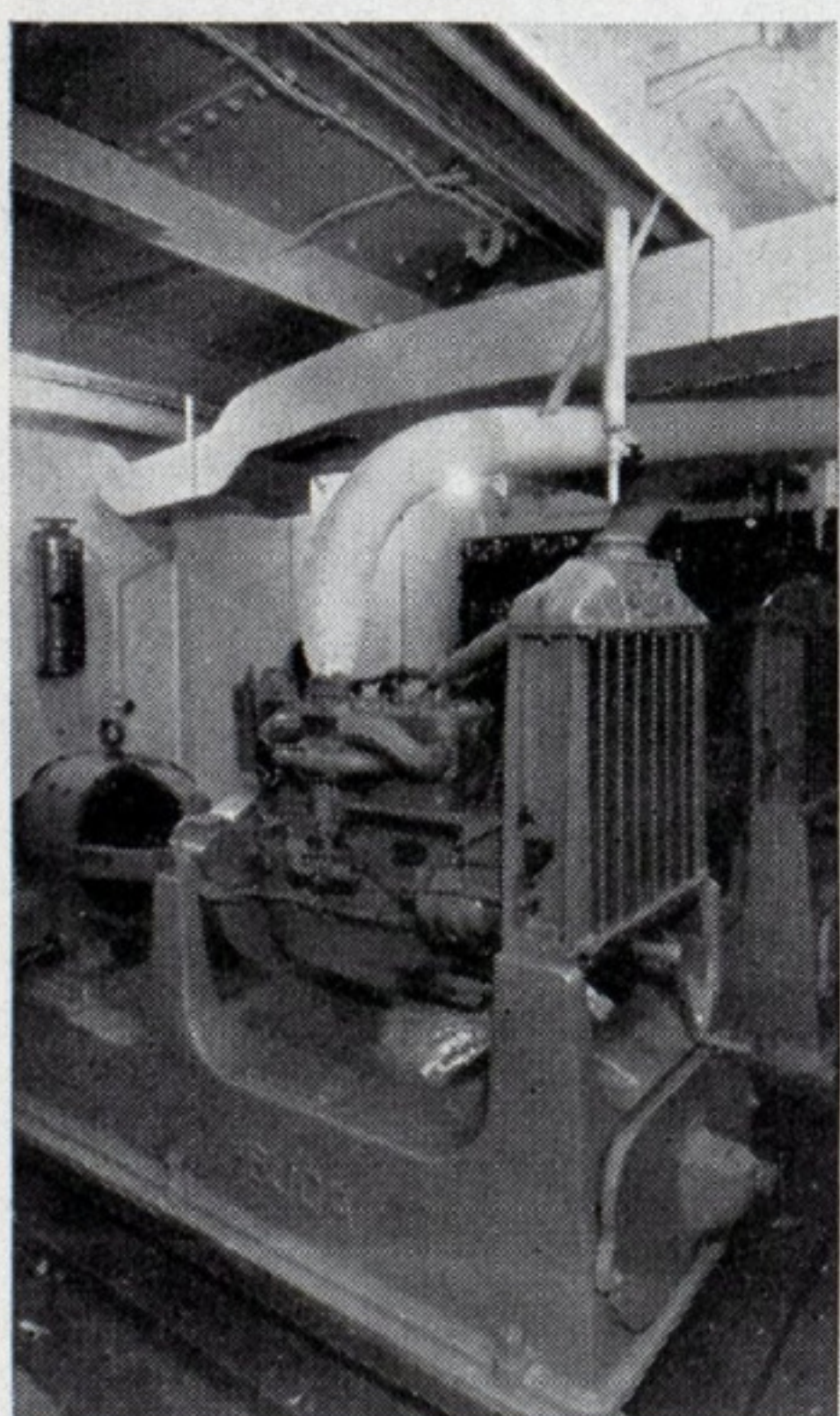


*Blowers for Ventilating System, Top Deck*

busson tapestry panel especially woven.

The furnishings are overstuffed chairs and settees, walnut armchairs in green leather, baize covered game tables and round card tables all of walnut; and glass top smoking stands. Ample overhead lighting is provided by 12-foot long trough lights between every other beam space and there are also wall bracket lights and a floor lamp in each corner. The walls are decorated with paintings of California scenes. The floors are in shades of green and vermillion rubber tile. Draperies are mounted in recessed window boxes and are of heavy

hand-blocked linen with white background and with shades of green and vermillion colorings. The first class dining saloon is located on the upper deck amidships just aft of the first class foyer and is in contemporary design with pinkish grey panel work and trim. The walls are flush paneled with applied moldings finished in gold leaf. All pilasters and columns are ornamented with an inset carved panel in gold leaf and



*Emergency Light Set*

the cornice and girder casings have molded edges with gilt finish. Airports are arranged in groups of four in each recess. The recesses have painted trim with moldings and carved ornamented gold leaf. A narrow scored mirror is fitted vertically between the pairs of airports. In the lower part of recess a ventilation duct enclosure is fitted with painted paneling and walnut top.

Over the center of the room there is a large well extending to the bridge deck with sides decorated by full height cut glass mirrors ornamented in gold leaf and separated by wide con-

cave painted pilasters. A musicians' gallery is provided at the forward end of the well. The ceiling over the entire space including the well is of painted Vehisote with mullions of white pine and is fitted below the beams.

A large sideboard paneled in satinwood with walnut top and trim placed under a tall scored mirror in a frame of carved walnut with gold leafed ornament is installed opposite the stairway on the centerline of the ship. Sideboards and mirrors of similar design are placed port and starboard at the forward and after ends of the room.

In addition to a "bachelors' table" with 16 seats there are dining tables, each seating, two, four or six persons with a total seating capacity of 272. These tables have solid walnut tops on a metal pedestal base adjustable to the sheer and camber of the deck. Dining room chairs have satinwood frames and are upholstered in modern fabrics. The tiled rubber flooring is of a pleasing design in light green tones.

Aft of the first class dining saloon on the port side of the ship there is a private dining room accommodating 16 persons.

## Other Public Rooms

ONE of the fine public spaces is the marine tea garden at the after end of the promenade deck. It is enclosed at the sides and most of the after end with sliding frameless plate glass storm windows, which when opened in favorable weather make it practically an open-air space. The walls in way of the windows are paneled in teak. Elsewhere the walls are flush paneled and painted in old rose, the center panels at each end being decorated in a stencil design in tinted silver leaf, with baseboard, cornice and panel strips of teak. The furnishings consist of veranda chairs and settees lacquered in ming green, Chinese red and ebony. There are wicker and silver lacquered arm chairs upholstered in green moire, green lacquered

*(Continued on Page 37)*



*Capstans and Bollards After Deck*



# Hull Construction, Characteristics

**O**F COMPLETE superstructure type the new liner has five fully plated decks in the hull, a combined forecabin and bridge deck, and promenade and boat deck over about 50 per cent of the ship's length. In all there are nine decks, of which number seven are either wholly or partially devoted to passengers. The side plating amidships is carried up to the promenade deck to form part of the enclosure for staterooms on the bridge deck. There are three tiers of steel erections above the bridge deck and above these is the wheel and chart house which is of teak construction. The deck inside of the erections on the boat deck is 4 feet higher than on the outside, in order to give greater headroom in the public spaces on the promenade deck. The promenade and boat decks overhang the sides of the vessel 18 inches and the navigating bridge, which is at the level of the top of the boat deck house (95 feet above the keel) extends 3 feet beyond the maximum beam on each side, in order to give an unobstructed view of the entire length of the vessel.

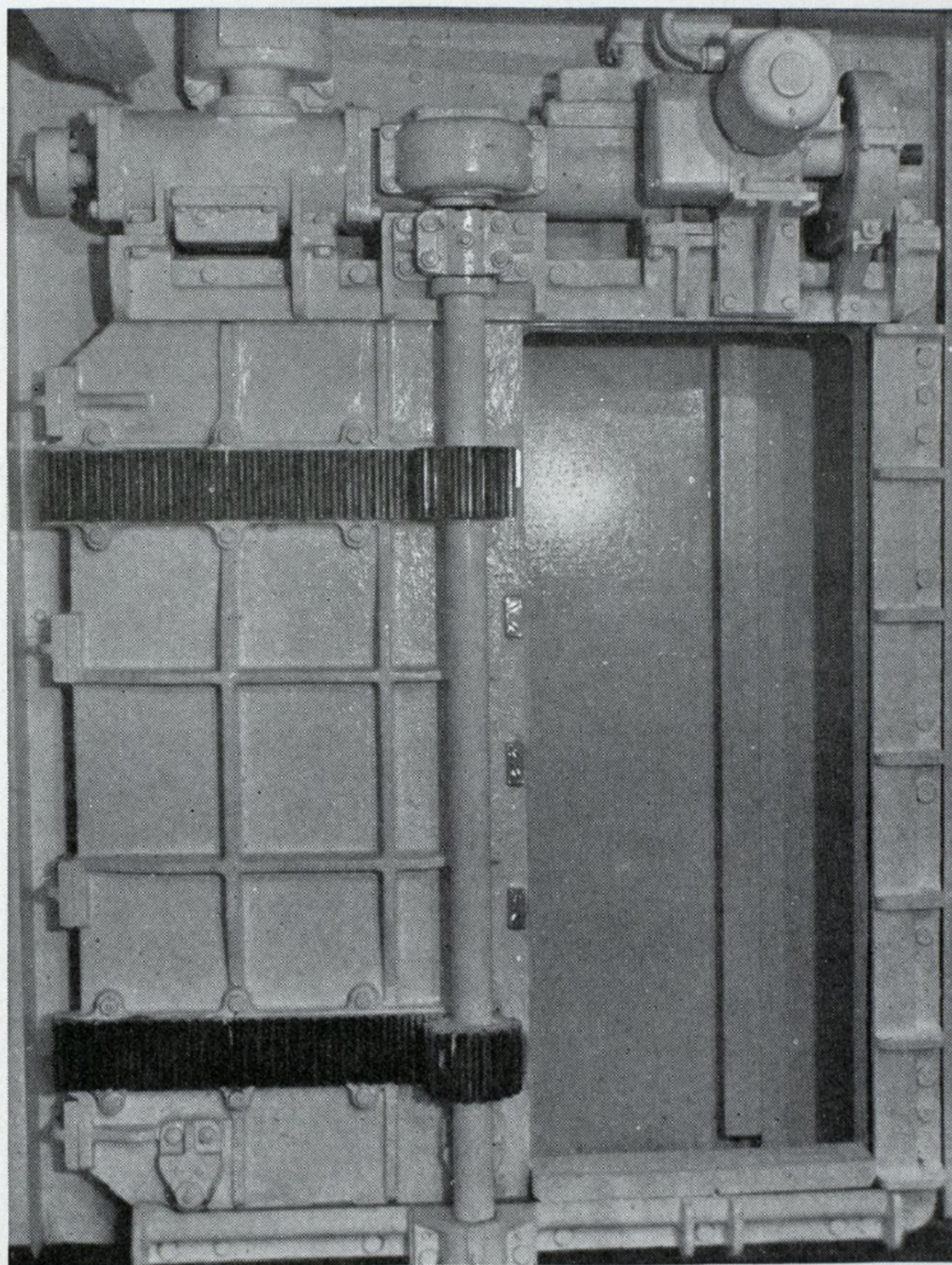
## General Particulars

### S. S. President Hoover

Contract signed.....	Oct. 26, 1929
Launched.....	Dec. 9, 1930
Completed.....	July 11, 1931
Length overall, feet, inches.....	654 3
Length on 32 foot waterline, feet, inches.....	630 0
Length between perpendiculars, feet, inches.....	615 0
Beam, molded, feet, inches.....	81 0
Depth molded to boat deck, side, ft., in.....	79 6
Depth molded to promenade deck, side, ft., in.....	70 0
Depth molded to bridge deck, side, ft., in.....	61 0
Depth molded to shelter deck side, ft., in.....	52 0
Depth molded to upper deck, side, ft., in.....	41 9
Depth molded to main deck, side, ft., in.....	32 9
Height between lower & main decks, ft., in.....	8 3
Height between orlop & lower decks, ft., in.....	8 3
Maximum draft, to bottom of keel, ft., in.....	34 0
Displacement at maximum draft, tons.....	33,350
Tons per inch at maximum draft.....	94.9
Midship section coefficient.....	.979
Block coefficient on w.l. length.....	.675
Gross tonnage.....	21,936
Net tonnage.....	12,986
Fuel oil capacity all tanks, tons.....	6240
Water ballast capacity, all tanks, tons.....	5670
Cocoonut oil, capacity, all tanks, tons.....	1181
Fresh water, tons.....	2320
Cargo, general, (cubic feet).....	556,000
Cargo, refrigerated, (cubic feet).....	59,500
Propulsion, turbo electric, twin screw, s.h.p.....	26,500
Shaft horsepower, maximum.....	33,000
Speed, average top runs, trial, knots.....	21.558
Speed, maximum, trial, knots.....	22.2
Boilers (watertube Babcock & Wilcox).....	12
Passengers, first class.....	307
Passengers, special class.....	133
Passengers, third class.....	170
Passengers, steerage.....	378
Passengers, total.....	988
Crew.....	324
Classification.....	American Bureau of Shipping
Subdivision.....	British Board of Trade, 1928 rules

The vessel has a straight stem, slightly raked, and an elliptical stern of the protected rudder or semi-cruiser type; with these and the two well placed masts and two stacks the profile presents a symmetrical appearance. The stern is bossed out for twin screw shafts. A complete double bottom is fitted which is utilized for fuel oil and fresh water and is also to a large extent available for water ballast when needed.

Subdivision by ten transverse bulkheads provides three cargo holds forward, two boiler rooms, one engine room, and three cargo holds aft. Further subdivision is provided by the

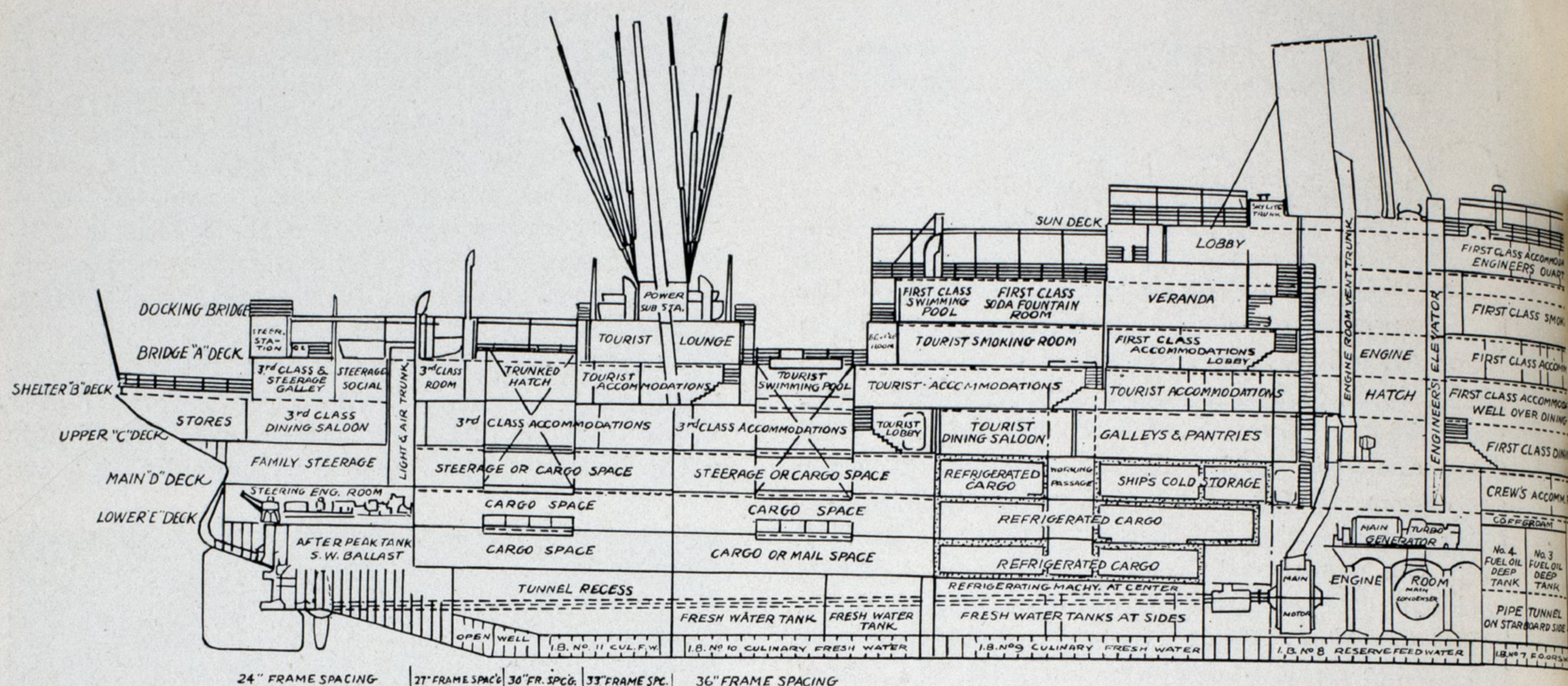


*Accurately Machined Watertight Door and Controls*

bulkheads bounding fuel oil tanks forward of the boiler rooms, at the sides thereof, and between the engine and boiler rooms, and by those bounding fresh water tanks abreast the shaft alleys.

All cargo spaces are located below the upper deck. Forward there are twelve compartments all of which are used for general cargo, and aft there are five for general cargo, one for mail in bulk, and three for refrigerated cargo. The insulated compartments, which are all in No. 4 'tween decks, are further subdivided into six smaller compartments on each of the orlop and lower decks, and on the main deck into three compartments for refrigerated cargo and several for ship's cold storage. There are thus 15





insulated compartments for refrigerated cargo, each one of which may be loaded or unloaded without in any way affecting the others.

All refrigerated cargo is handled through two trunked hatches extending through to the bridge deck, located, one port and one starboard. At each of the cargo deck levels an athwartship passage 10 feet wide connects the two hatches and provides a working space so that cargo may be loaded from either side of the ship into any compartment. General cargo carried in Ncs. 1, 2, 5, and 6 holds is handled through weather deck hatches by booms at the masts.

In addition to the main hatch in No. 2, there is a cargo port on each side between main and upper decks and two wing hatches fitted in way thereof in the main and lower decks for the handling of special cargo of a light nature. At the after end of No. 2 main 'tween decks a separate compartment for the stowage of special cargo is provided; the bulkhead separating this compartment from the main space has two large sliding doors to permit of handling freight from one to the other.

All cargo carried in No. 3 holds is handled through cargo ports of which there are two on each side in the main 'tween decks; two wing hatches extend through the main, lower and orlop decks. The main 'tween deck spaces in No. 5 and No. 6 are arranged so that either steerage passengers or cargo may be carried in them.

No. 2 upper 'tween decks is reserved for the carriage of passengers' automobiles and a large cargo port is fitted on each side of the vessel through which they may be driven directly on board, or hauled in by means of a special capstan provided for that purpose. In addition to the carriage of miscellaneous bulk, dry and packaged cargo, provision is made for carrying a large amount of cocoanut oil in certain of the

tanks which normally are used for fuel oil.

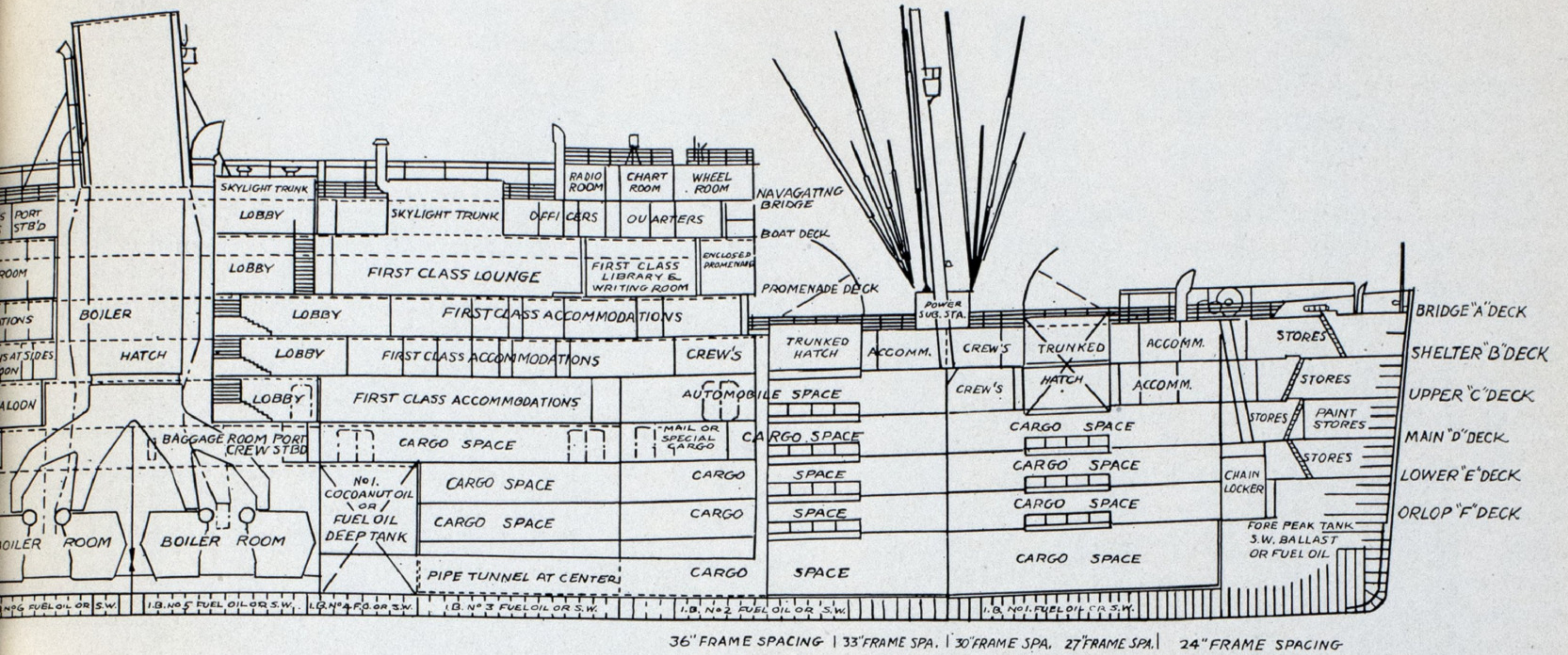
Provision is also made for the carriage of mail and postal matter. For this purpose there is a fully equipped sea-postoffice on the upper deck with entrance from the special class lobby. A special enclosure for registered mail is fitted. Mail in bulk is carried in No. 5 orlop 'tween decks and a special mail trunk connects this space with the sorting room. Mail is loaded through No. 6 hatch the trunked portion of which adjoins the post office with which connection is made through sliding doors. Adjoining the post office and No. 6 hatch there is a special steel enclosed compartment for the carriage of specie, and another similar room for the same purpose is provided in the No. 3 main 'tween decks.

## Features of Hull Construction

**T**HE steel hull is constructed with transverse framing and scantlings fully comply with the rules of the American bureau of shipping, under whose special survey the vessel was built. Side frames are channels and are joggled to avoid the use of shell liners; except in way of oiltight flats they are continuous from tank top to the top deck in way of all side plating. The frames, generally, are of three sizes, the heavy section terminating at the main deck and the intermediate section at the shelter deck; the different sections are welded together in way of the beam brackets at those decks. Frames amidships are spaced 36 inches and at the ends are reduced by steps to 24 inches in the peaks.

Deck beams up to and including the promenade deck are channels fitted on every frame; above that deck they are, in general, angle beams. Decks generally are supported by three rows of girders and wide spaced pillars. Below the shelter deck the pillars are tubular and have welded plate flanges stiffened by welded



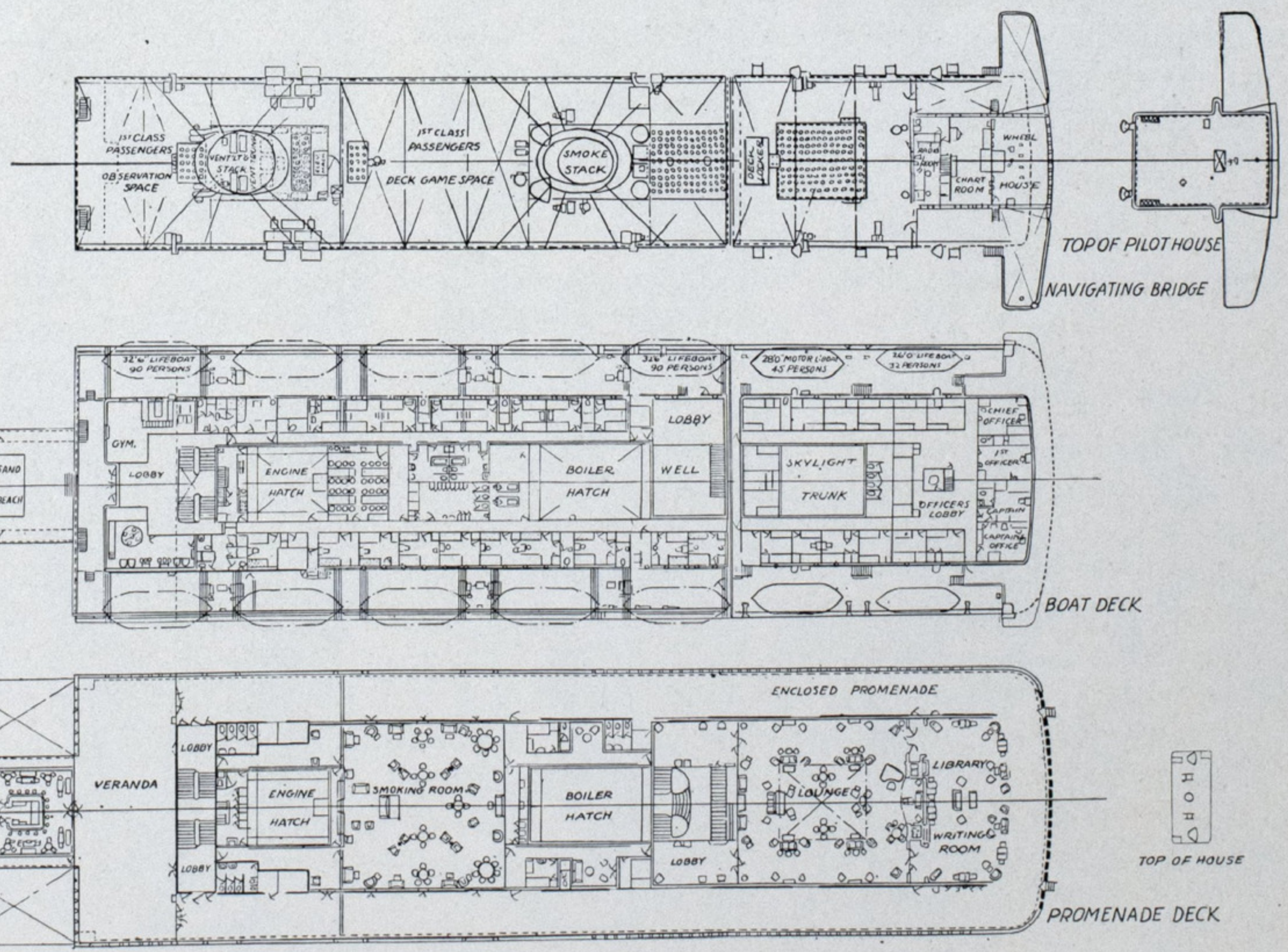


brackets. There are seven fully plated decks in the structure, which number includes the promenade deck and all decks below it; the sun deck and the boat deck inside the superstructure are also completely plated. Two expansion joints are fitted in the superstructure extending down to the promenade deck. All exposed decks are sheathed with calked wood decks; all of teak, with teak margins, except on the forecastle deck where Oregon pine with teak margins is laid.

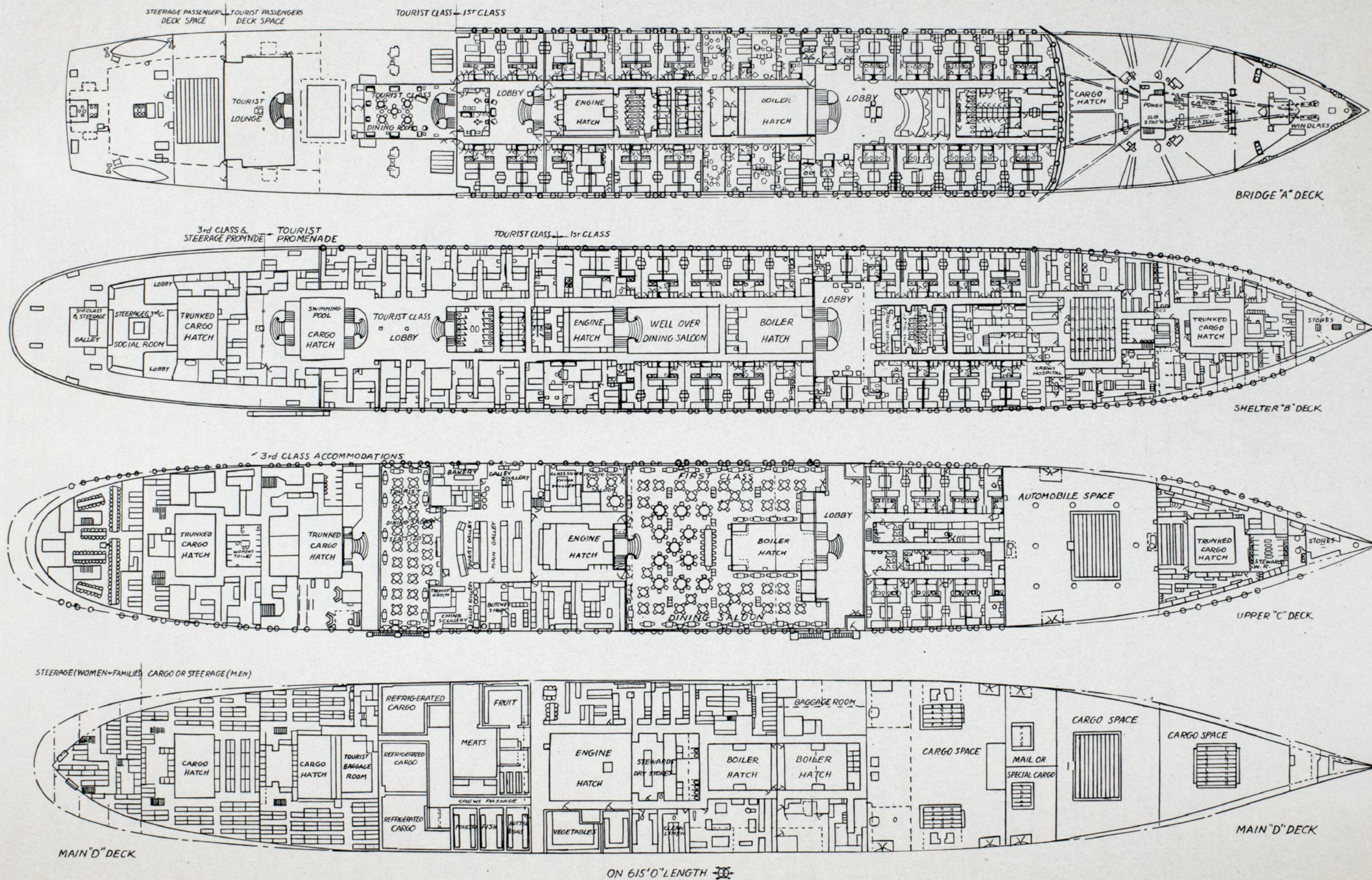
Bulkheads are fitted in number and extent to fully comply with the regulations adopted by the international convention (1929) on safety of life at sea as well as with those of the United States steamboat inspection service and the British board of trade. Practically all these bulkheads extend watertight to the shelter deck; the fore peak extends to the forecastle deck. All public and private bathrooms, toilets, etc., are enclosed by steel bulkheads, and all bulkheads in galley spaces are also either entirely en-

closed with steel or with steel and wire mesh. In general throughout all petty officers' and crews' quarters on main, upper and shelter decks the bounding and divisional bulkheads are also of steel. In the construction of these bulkheads welding was used to a considerable extent.

The stem is in four sections, the two upper ones of rolled steel bars and the two lower of steel castings of a bulbous form. All sections are connected together by scarphed joints. The forefoot is raised 3 feet 6 inches at forward perpendicular, the cut-up starting about 63 feet aft. The bulbous form is of a medium type. The stern frame is of cast steel in five sections, the main section containing the rudder trunk and two gudgeons for the rudder. The lower







Deck plans S. S. President Hoover continued—See Pages 24-25 for Inboard Profile and other decks



section extends well forward for connection to the keel and the three upper sections form the end of the semicruiser stern.

Of semibalanced design, the rudder is of streamline type with cast steel frame enclosed by riveted plates. The frame is in three sections, the main section carrying ribs to stiffen the side plates and for attachment of the angle stiffeners on the latter. The two gudgeons have bronze bushings with lignum-vitae bearing surface and the wrought steel pintles have bronze casings. The rudder stock is forged steel 22 inches diameter, with a  $3\frac{1}{4}$ -inch axial hole and four collars, and is connected to the rudder through a horizontal coupling by 12 body-bound bolts; the palm also has a feather to relieve the shearing stress on the latter.

#### Complete Double Bottom Throughout

**T**HE rudder is supported within the hull by a bearing of the collar type located at the lower deck level. Bearing is cast steel, in halves and is lined with white metal in way of the bearing surfaces of the four collars on the rudder stock. There is also a steady bearing with stuffing box fitted on the trunk of the stern frame; this bearing is also of cast steel in halves with a bronze gland and bronze bushing. A brass sleeve is fitted on the rudder stock in way of the steady bearing.

A double bottom extends from the collision bulkhead as far aft as shape of the vessel permits. It is 60 inches deep amidships and is increased in depth in No. 1 hold and also at the after end. Longitudinally it is divided into 11 compartments by watertight and oiltight floors and all but No. 1 and No. 11 compartments are also divided transversely by the watertight vertical keel; in the two extreme end compartments the latter is nonwatertight.

All double bottom compartments forward of the engine room are fitted for carrying either fuel oil or water ballast and those under the engine room and aft are fitted for carrying fresh water only. A cofferdam is fitted between the oil and fresh water carrying divisions, and all drainage wells are fitted in accordance with the regulations of the safety-at-sea convention (1929). Solid floors, with suitable lightening holes, are fitted on every frame under the engine room, throughout the forward one-fifth length, and also for a considerable distance at the after end; in the boiler rooms solid floors are fitted on alternate frames and elsewhere every third frame with open bracketed floors between.

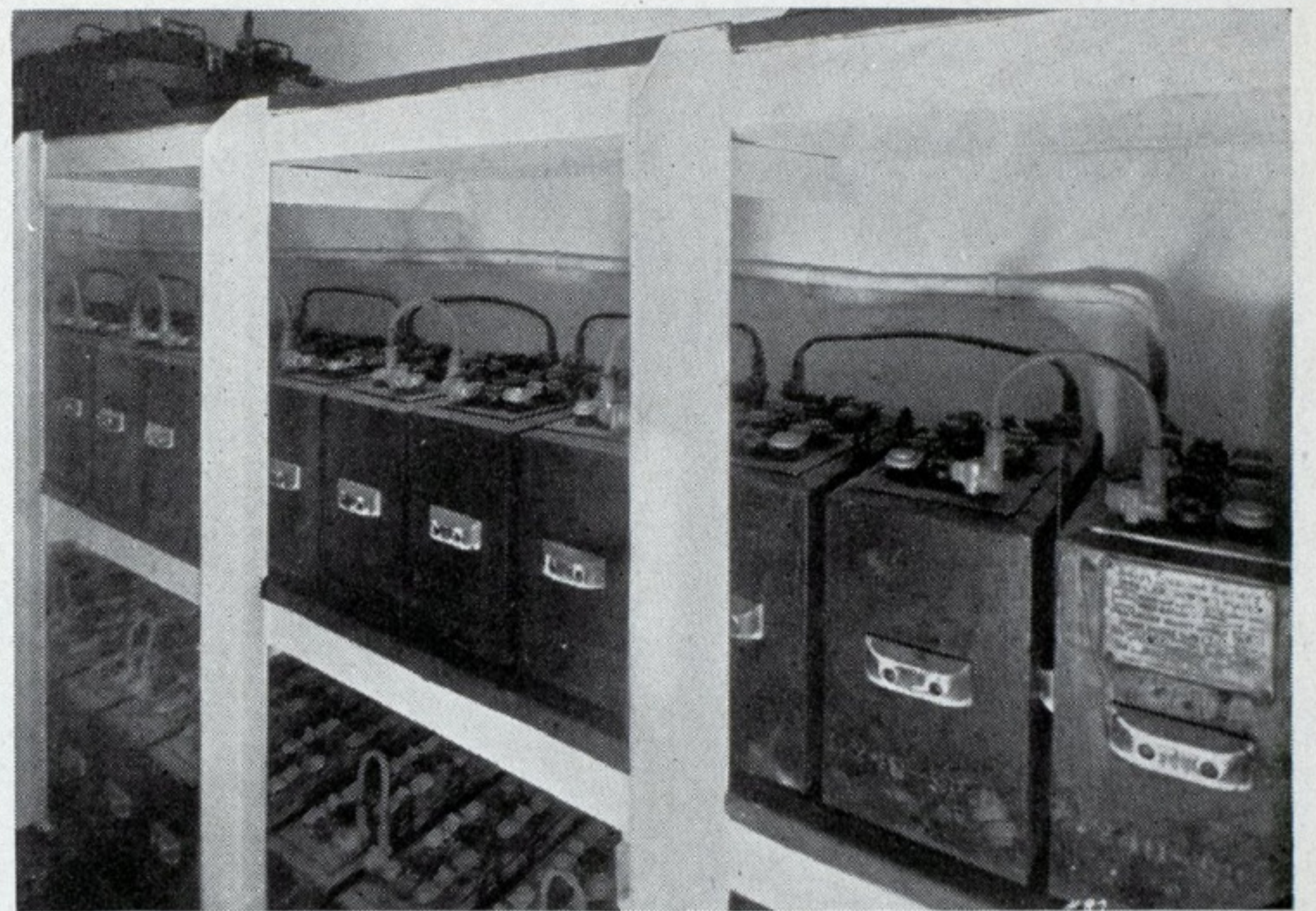
Two side girders are fitted on each side of the centerline, intercostal between solid floors, and additional stiffening is fitted at the forward end and under the engine room. Frames in the double bottom are joggled, but reverse frames

are straight and tank top plating joggled.

Athwartship tanks are fitted forward of the boiler rooms and between the boiler and engine rooms, and side tanks are fitted abreast each boiler room. All tanks extend to the main deck except that in way of the after athwartship tanks a cofferdam is fitted under the deck to accommodate pipes, etc. The athwartship tanks are divided transversely into four compartments and in addition the after ones are divided longitudinally. Altogether there are 20 separate compartments; those abreast the boiler rooms are mostly used for settling tanks.

A pipe tunnel is fitted through the tanks at the forward end of the boiler room and extends through No. 3 hold and part of No. 2 hold, with an escape trunk extending to the shelter deck.

In addition to some of the double bottom compartments aft which are used exclusively for carrying fresh water for domestic service,



*Electric Storage Batteries Substantially Housed*

there are a number of built-in fresh water tanks. These tanks are located outboard of the refrigerating machinery space and abreast the shaft alleys and extend from the double bottom to the orlop deck. There are also two tanks on the centerline between the shaft alleys. The ten tanks thus provided have a combined capacity of about 1300 tons of fresh water.

#### Accommodations for Ship's Complement

**T**HE two masts are of riveted design, with doublers at partners and hounds, but without stiffeners. Each mast heels on the shelter deck and is fitted with a topmast of tubular construction. The topmasts are telescopic, the arrangement permitting them to be lowered about 28 feet. Masts are fitted with stretchers to take the leads of the boom topping lifts.

Accommodations for a total ship's complement of 324 are provided for. These are located in different parts of the ship, those for

*(Continued on Page 30)*



## Twin Screw Turbine Electric Liner President Hoover — Auxiliaries and Equipment

### Boilers and Auxiliaries

**Twelve Babcock & Wilcox watertube Boilers in two firerooms**—Total heating surface 57,624 square feet; working pressure, 300 pounds per square inch; superheat, 200 degrees Fahr., Babcock & Wilcox interdeck superheaters, each 475 square feet heating surface; four Babcock & Wilcox mechanical atomizing oil burners, Cuyama design, operating under forced draft, for each boiler; boiler furnaces lined with Babcock & Wilcox No. 80 firebrick and special insulation; six boilers have B. & W. internal desuperheaters to deliver steam at 50 degrees Fahr. superheat to certain auxiliaries and for heating; feed water regulators of B. & W. float type on each boiler; each boiler equipped with Diamond soot blowers.

**Air Ejectors**—Four, Westinghouse.

**Forced Draft & Heaters**—Four Sturtevant electric (G. E.) driven fans each of a capacity of 30,000 cubic feet per minute; two marine heaters of 4000 cubic feet per minute with capacity to heat 75 per cent of the air volume from zero to 90 degrees when supplied with 40 pounds of steam.

**Pressure and Vacuum Gages**—Six 6-inch dial; nineteen 4-inch dial, one standard test gage from zero to 500 pounds for main boilers. Consolidated Ashcroft Hancock Co. Inc.

**Ejector**—One, No. 5 model "C" H-D Hancock.

**Feed Water Heater**—Davis, coil type.

**Fuel Oil Heaters**—Six No. 6 Reilly.

**Lubricating Oil Coolers**—Two, Griscom-Russell.

**Filters, Feed Water**—Two Griscom-Russell.

**Evaporators**—Three No. 28 Reilly.

**Distillers**—Two type K Griscom-Russell.

**Conductivity Recorder**—For detecting impurities in feed water, distillate or condensate, Leeds & Northrup Co.

**Thermometers**—For temperature, steam, water and brine lines, C. J. Tagliabue Mfg. Co.

### Engine Room Auxiliaries

**Turbo-Generators**—Four 500 K. W., 240 v. General Electric. Two balancer sets, two unit type 30 K. W.

**Electric Motors**—Four 35/115 H. P., 360/600 r.p.m., main circulating; two 20/30 h. p., 650/900 r. p. m. auxiliary circulating; three 15 h. p. 1200 r. p. m. main condensate; three 5 h. p. 1750 r. p. m. auxiliary condensate; two 30/40 h. p., 1400/1720 r. p. m. sanitary & fire; one 25 h. p. 1150 r. p. m. ballast pump; one 1½ h. p. 1750 r. p. m. ice water circulating; four 2/20 h. p. 410/890 r. p. m. forced draft blowers; four 100 h. p. 250/320 r. p. m. refrigerating compressors; two 5/10 h. p. 1030/1150 r. p. m. CO₂ condenser circulating; three 25 h. p. 1650/1750 r. p. m. brine circulating; one 7½ h. p. 1750 r. p. m. small brine circulating; two 20/40 h. p. 420/740 r. p. m. main motor ventilation; two 65/11 h. p. 700/1500 r. p. m. fuel oil service; one 85 h. p., air compressor; two 75 h. p. 400 r. p. m. steering gear; two 10 h. p. 800 r. p. m. shaft turning gear. All General Electric Co.

**Circuit Breakers**—Four 2500 ampere type L. G.; one 2000 ampere type L. G.; one 1250, one 1000, three 800, five 500, and two 300 ampere all type L. X. Supplied by I-T-E Circuit Breaker Co.

**Thrust Bearings**—Two, size 47 inches, Kingsbury.

**Electric Storage Batteries**—Emergency lighting, watertight doors, wireless, 120 type M. V. A. Exide Ironclad cells; two sets interior communications of 11 type K. X. K.-11 Exide cells. The Electric Storage Battery Co.

**Heat Indicators**—One Pyrometer model 103 for stack temperatures; three 36-inch thermocouples in wrought iron tubes for mounting in stack and flues; The Brown Instrument Co.

### Pumps and Services

**Feed Pumps**—Two 5-inch, 3-stage driven by Terry steam turbines of 275 h. p.; capacity each pump, 700 g. p. m. @ 435 lbs. per sq. in.; Warren Steam Pump Co. Inc., Terry turbines by Kearfott Engineering Co.

**Steam Pumps**—One 14 x 8 x 24 inches auxiliary feed; one 14 x 8 x 18 inches auxiliary feed; one 12 x 8 x 24 inches fire and general service; two 12 x 12 x 24 inches lubricating oil; two 8 x 5 x 12 inches fuel oil service; two 12 x 14 x 18 inches fuel oil

transfer; one 6 x 6 x 12 inches sediment; two 6 x 6 x 12 inches fresh water; one 10 x 12 x 24 inches engine room bilge; one 12 x 14 x 18 inches boiler room bilge; one 4½ x 5 x 6 inches hot water circulating; all vertical single acting; one 7½ x 6 x 10 inches horizontal duplex evaporator feed. Warren Steam Pump Co. Inc.

**Centrifugal Pumps**—Four 20-inch main condenser circulating; two 12-inch auxiliary condenser circulating; two 4-inch fire and sanitary; three 2-inch auxiliary condensate; one 1-inch ice water circulating; two 5-inch CO₂ condenser circulating; three 3-inch refrigerator brine circulating; one 5-inch ballast; all the foregoing single stage; three 4-inch 2-stage main condensate; one 1½-inch 2-stage small brine. Warren Steam Pump Co. Inc., and driven by G. E. motors.

**Other Pumps**—One No. 1 hand rotary pump for lubricating oils; one 1-inch motor driven centrifugal pump for circulating water to ornamental fountains. Goulds Pumps, Inc.

### Ventilation and Refrigeration

**Ventilating Fans**—Thirty-eight for hull. B. F. Sturtevant Co. fans; General Electric motors.

**Cargo Cooling Fans**—Eighteen, nine American Blower Co.; nine Westinghouse Electric & Mfg. Co. All 18 driven by Westinghouse motors.

**Refrigeration**—Four 3-cylinder vertical single acting high speed Brunswick-Kroeschell CO₂ compressors, each direct connected to a variable speed 100 H. P. General Electric motor; four cylindrical shell and coil type CO₂ condensers and four shell and coil type CO₂ evaporators. Fifteen cargo refrigerated compartments, 70,000 cubic feet. Also ship's stores refrigerators. Complete water cooling system and a one-ton per day ice-making set. Brunswick-Kroeschell.

**Refrigerators**—Individual—One in beverage room first class pantry; one in officers deck pantry; and one in tourist pantry. Frigidaire Corp.

**Heaters — Electric** — For staterooms and bathrooms; 105-1000 watt; 145-650 watt; 32-1200 watt; all of 230 volts, Westinghouse.

### Safety Equipment

**Indicators**—Main turbines, Taylor Instrument Co.

**Fire Protection**—Each boiler room protected by Lux system, 40 CO₂ gas cylinders; also Lux hose reel for small fires. Walter Kidde & Co. Inc.

**Fire Detection**—Cargo spaces protected by Rich system of 29 smoke detecting lines to cabinet in wheelhouse. Staterooms, public rooms and other spaces protected by an electric fire detecting system operated by thermostats; exact location of fire indicated on control panel in wheelhouse. Walter Kidde & Co. Inc.

**Depth Finder**—Fathometer, Submarine Signal Corp.

**Whistles**—Star Brass Mfg. Co.

**Navigation**—Gyro compass with duplicate motor generators, repeaters, and recorder; two-unit gyro pilot; two 18-inch incandescent searchlights; one 24-inch incandescent Suez canal searchlight. Sperry Gyroscope Co. Inc.

**Compasses, Etc.**—One U. S. navy type for top of wheelhouse; one U. S. navy type for wheelhouse; one navy binnacle for after position; one pelorus, and one Walker's trident log. John E. Hand & Sons Co.

**Anchor Chain**—Cast steel stud link, 330 fathoms, 3¼-inch wire diameter. National Malleable & Steel Castings Co.

**Anchor**—Dunn stockless anchors, two bower, 18,900 lbs. each; one stream 16,065 lbs., and one kedge, 6825 lbs. General Steel Castings Corp.

**Signalling**—Mechanical engine and docking telegraph system, 4 in pilothouse, 1 on each docking bridge; oil burner order transmitters; oil burner indicators; speed indicators from engine room to fireroom; clear view screens in pilothouse; running light panel in panelhouse. Chas. Cory Corp.

**Telephones**—Watertight loud talking. Chas. J. Henschel & Co. Inc. General service system. The Holtzer-Cabot Electric Co.

**Watertight Doors**—Fifteen watertight doors built by Newport News Shipbuilding & Dry Dock Co. with control systems by Cutler-Hammer.

**Life Saving**—Ten 32.5-foot 92-person lifeboats, four 28-foot 60-person lifeboats, two 26-foot 50-person lifeboats; two 26-foot 35-person work boats and two 28-foot motor lifeboats equipped with 18 h. p. Palmer motors. Welin-Maclachlan gravity davits for each of the ten 92-person lifeboats; the remaining boats served by Welin quadrant davits; all boats fitted with Steward releasing gears; each lifeboat is retrieved by a worm gear winch electric driven. G. E. motors. Welin Davit & Boat Corp.

**Radio Compass**—Kolster, Mackay Radio & Telegraph.

**Fresh Water**—Three filters for purifying, drinking and culinary water. Loomis-Manning.

**Fire Extinguishers**—Soda acid and foam type. Buffalo Fire Appliance Corp.

### Miscellaneous Equipment

**Steering Gear**—Electrohydraulic, Hele-Shaw pumps driven by 75 h. p. G. E. motors; controlled in pilothouse by hydraulic tele-motor. American Engineering Co.

**Windlass**—Steam spur geared, capacity, 2 anchors each weighing 18,900 lbs. and 3¼-inch chain cable in 30 fathoms; two warping heads 26 inches diameter. American Engineering Co.

**Capstan**—Steam reversible. American Engineering Co.

**Gypsies, Boat Winches**—Three 75 h. p., two 15 h. p. gypsies; two 25 h. p. boat winches. Hyde Windlass Co.

**Cargo Winches**—Twenty-four electric drive cargo winches, eighteen 35 h. p. single geared high speed; two 35 h. p. single geared two speed; four 25 h. p. double geared for 'tween decks. Lidgerwood Mfg. Co., G. E. motors.

**Windows**—Over 100 for promenade deck, 30 inches x 47 inches, ¾-inch glass mechanically operated; a few 1-inch glass; 132 deck house windows mechanically operated 20 x 36 inches watertight; 6 windows on veranda; 61 casement windows in public spaces of the Kearfott-Kawneer bronze and hinged sash type, in deck house opening on promenade deck. Kearfott Engineering Co. Inc.

**Galley**—Electric, 9 marine ranges, 2 griddles, 2 broilers, etc., in main galley; 3 additional ranges for steerage, crews and Chinese galley respectively; 1 broiler, 1 toaster, 2 egg boilers, etc., and 2 bake ovens with steam connections for the grill and larder. Edison General Electric Appliance Co. Inc.

**Revolution Counter**—Cummings Machine Works.

**Hardware, Fixtures**—Part by the Dayton Mfg. Co. Special stateroom door locks by Schlage Lock Co.

**Oil and Water Separators**—Bethlehem S. B. Corp.

**Forgings, Steel**—Bethlehem Steel Co.

**Lighting Fixtures**—Cox, Nostrand & Gunnison.

**Valves**—Most of the valves including 400 lbs. steam lines by Crane Co. Walworth Co. supplied a number of bronze globe angle and gate valves. Reducing valves by Schutte Koerting Co.; also some oil service valves by John Simmons Co.

**Air Compressor**—100 lbs., Ingersoll-Rand Co.

**Flooring**—Goodyear rubber tile.

**Deck Covering**—Steel decks throughout passenger and crew quarters covered with Asbestolith. Asbestolith Mfg. Co.

**Laundry**—American Laundry Machine Co.

**Pneumatic Tube**—Vacuum line 2¼-inch mechanical messenger service between radio room and purser's office. The Lamson Co.

**Grilles**—Ornamental, William Highton & Sons.

**Elevators**—Three, one from D to A deck for passengers, one combination passenger and baggage from E to boat deck serving 6 decks; one engineers' elevator from E to boat deck. Otis Elevator Co.

**Tank Gages**—Sixteen registering feet and inches and in gallons. Pneumercator Co. Inc.

**Steel Castings**—Rudder post and stem, Wheeling Mold & Foundry.

**Rigging Blocks**—For cargo falls, 24 14-inch diameter sheave; Young Iron Works; rigging blocks by Boston & Lockport Block Co.

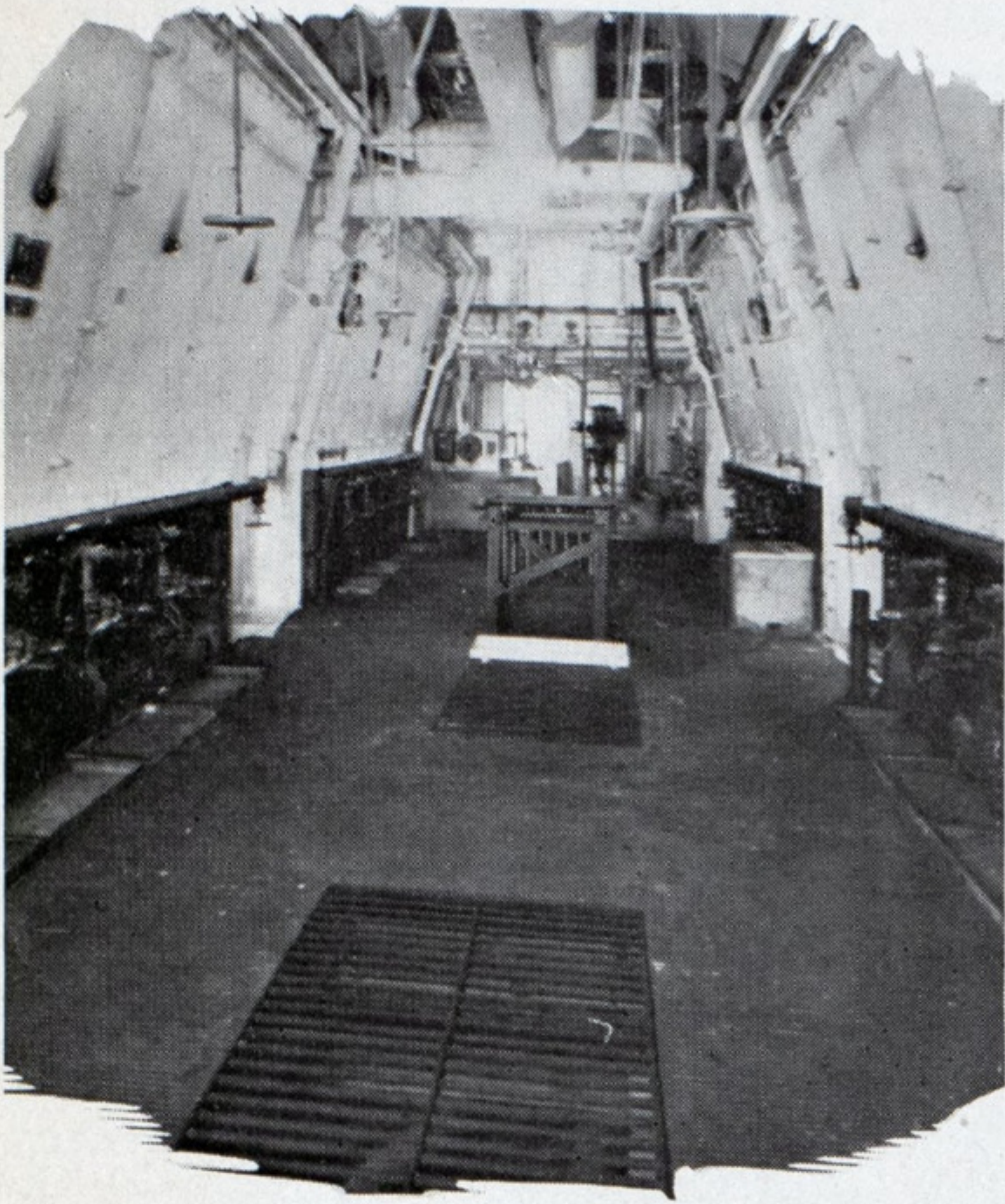
**Paneling**—Ceilings and room bulkheads, 83,000 feet, The Pantasote Co. Inc. Plywood for built-in furniture, Roddis Plywood Co.

**Tiling in Bathrooms**—Furnished and installed by J. W. Davis.

**Iron Pipe**—Reading Iron Co.

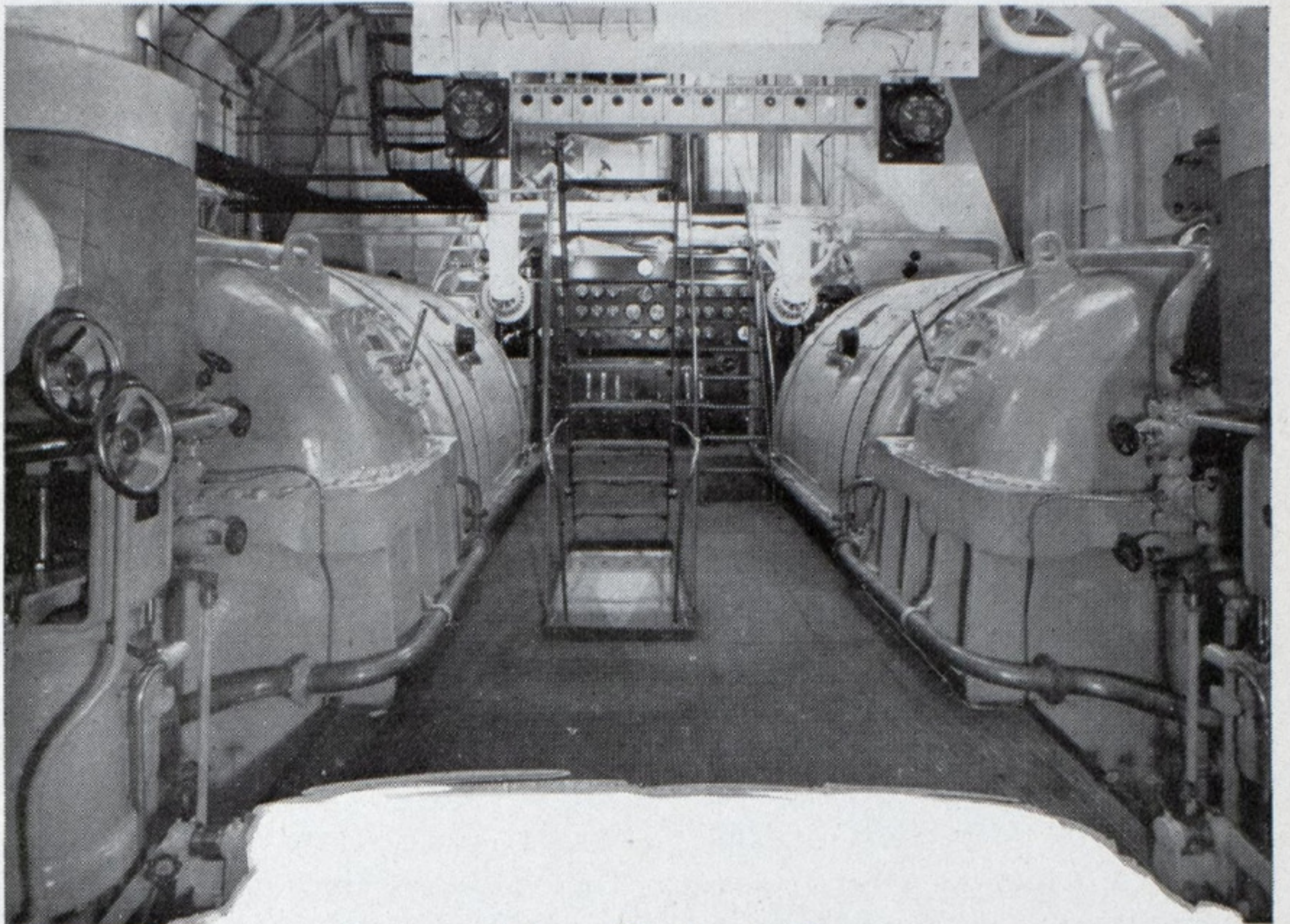
**Clock System**—Standard Electric Time Co.



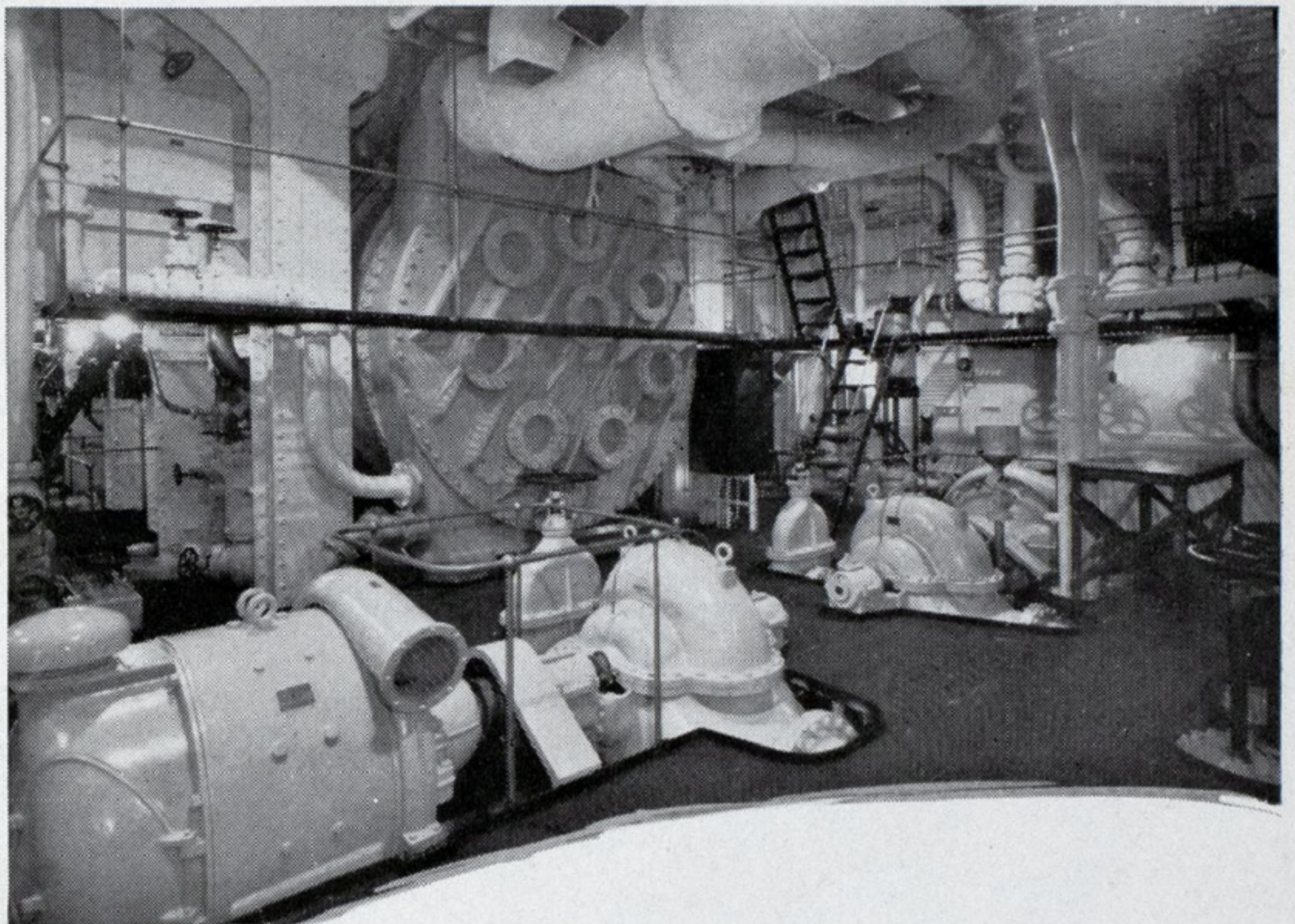


Above, Boiler Room Athwartship Alley

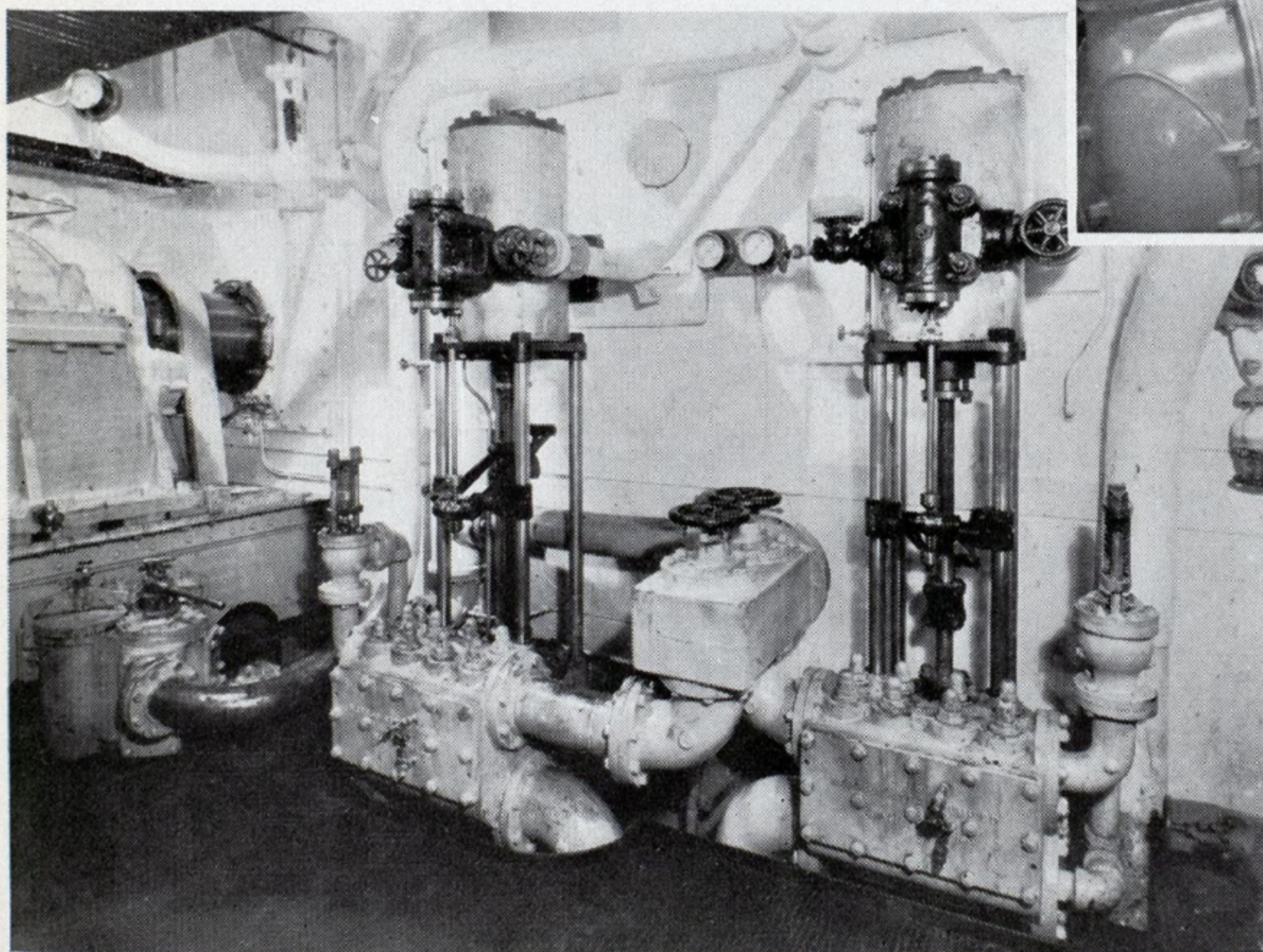
## Propelling Machinery



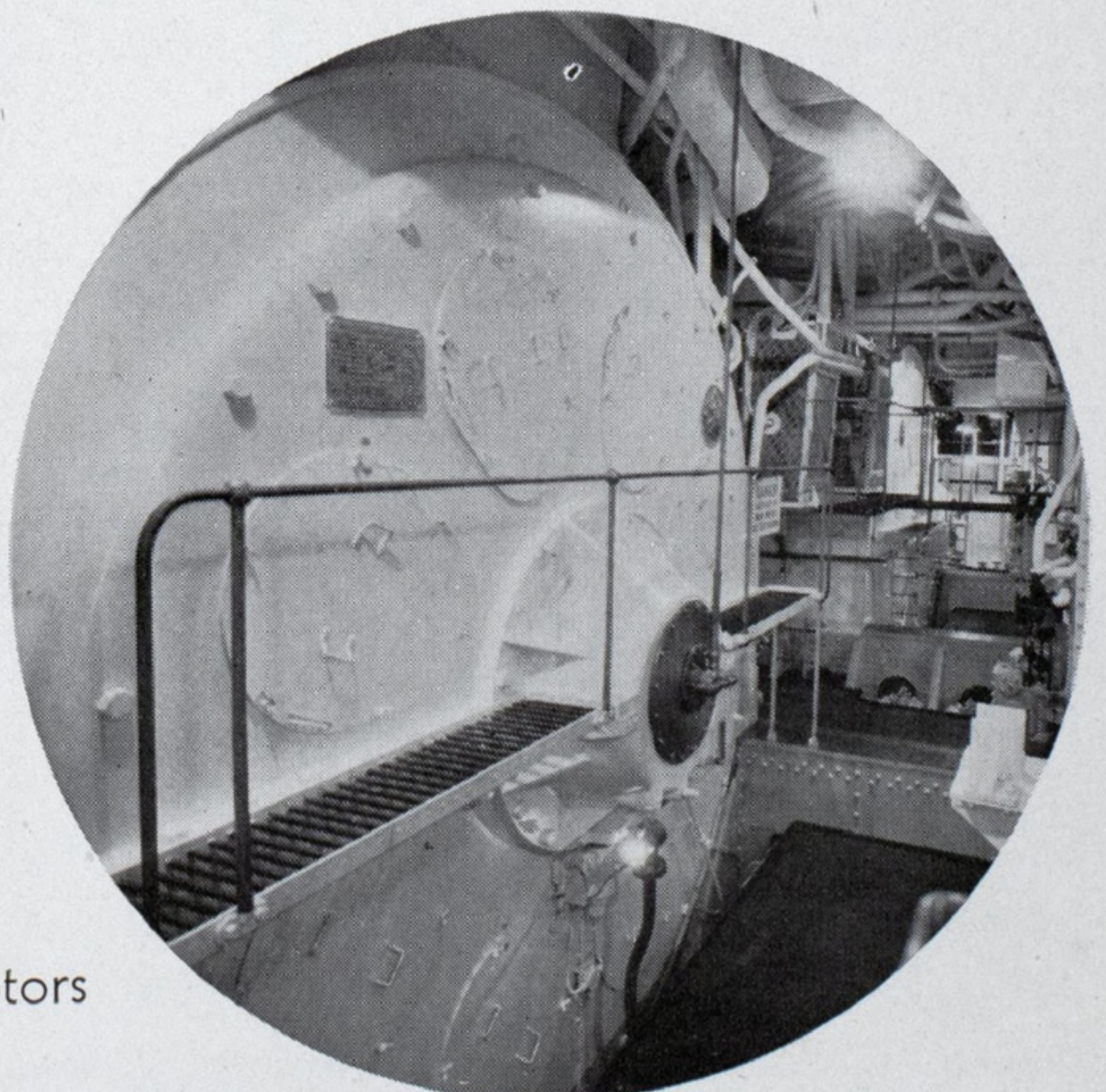
Above, Main Turbine Generators



Above, Engine Room, Main Condenser, Pumps



Above, Steam Pumps for Main Feed



Right, Forward End One Of The Main Propelling Motors



the captain, deck officers and most of the engineers being located on the boat deck, and those for the crew at the forward end of the shelter and upper decks and amidships on the main deck. For the different departments seven messrooms have been provided, each having its own pantry service. The officers' messroom for the deck officers and engineers is located on the boat deck, one for the junior engineers and another for oilers and watertenders are on the main deck amidships, the petty officers' messroom is on the shelter deck forward, as are also separate messrooms for seamen and firemen, and a messroom for stewards is on the upper deck forward. A crew's barber shop and a crew's hospital with separate isolation ward, each with its own toilet, are provided on the shelter deck. Passageways are provided forward and aft which permit the crew to go to either end of the ship without passing through any passenger space.

## Five Separate Galleys Installed

**W**ITH a complement of over 1300 people to provide food for victualling arrangements are necessarily on a large scale. A total of five separate galleys are provided, three of which are for passengers and two for crew. The main galley, with its connected bakery, sculleries, pantries, etc., is located amidships on the upper deck aft of the main dining room to which the pantries are directly connected by passages on each side of the engine casing.

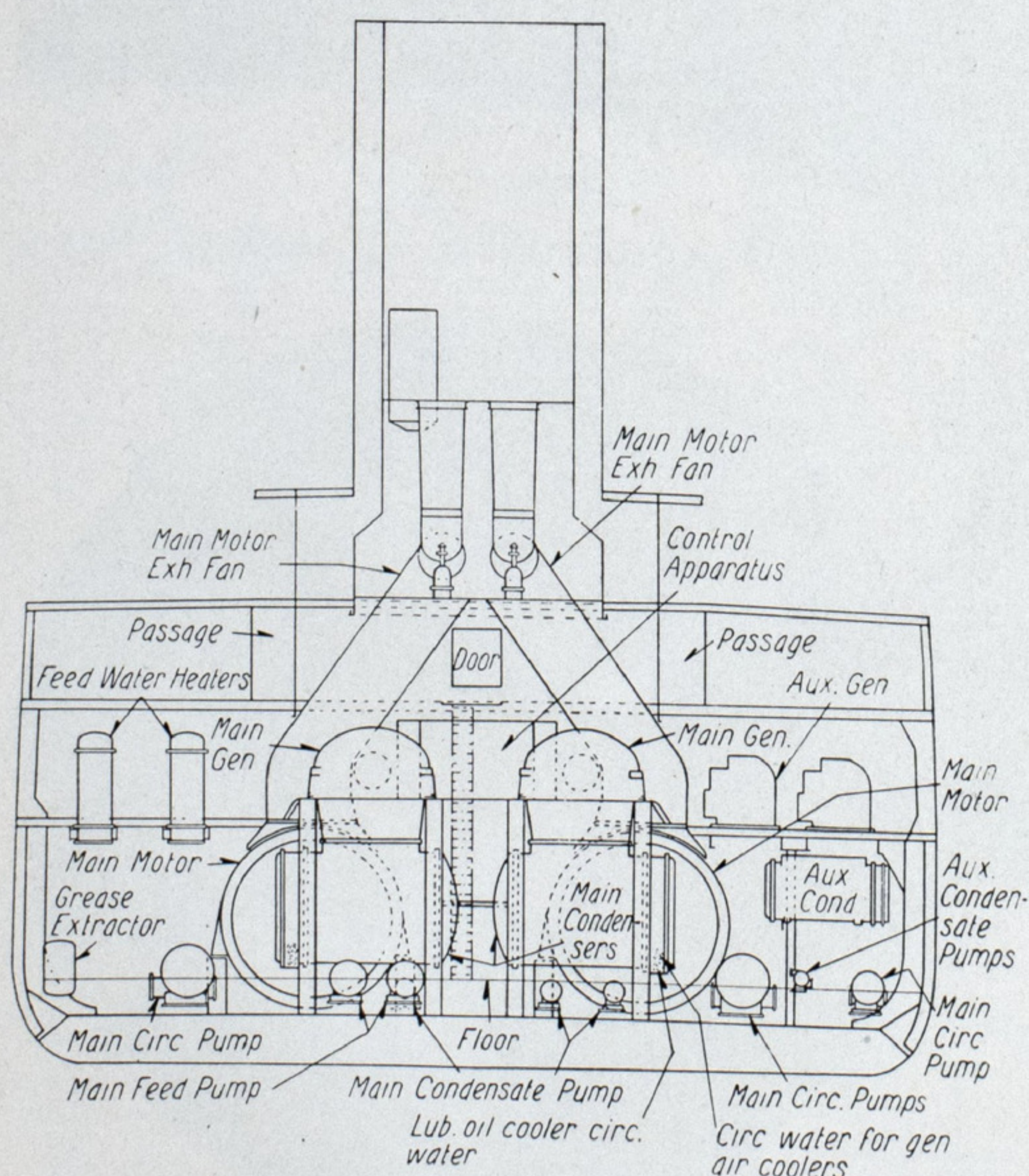
Separate galley and pantry equipment for

special class passengers is provided in the main galley enclosure at its after end and direct access provided to the special class dining room immediately aft thereof. For third class and steerage passengers there is a separate galley at the extreme after end of the shelter deck. Forward on the shelter deck there are two crew's galleys, one for the American members and a Chinese galley for Asiatics.

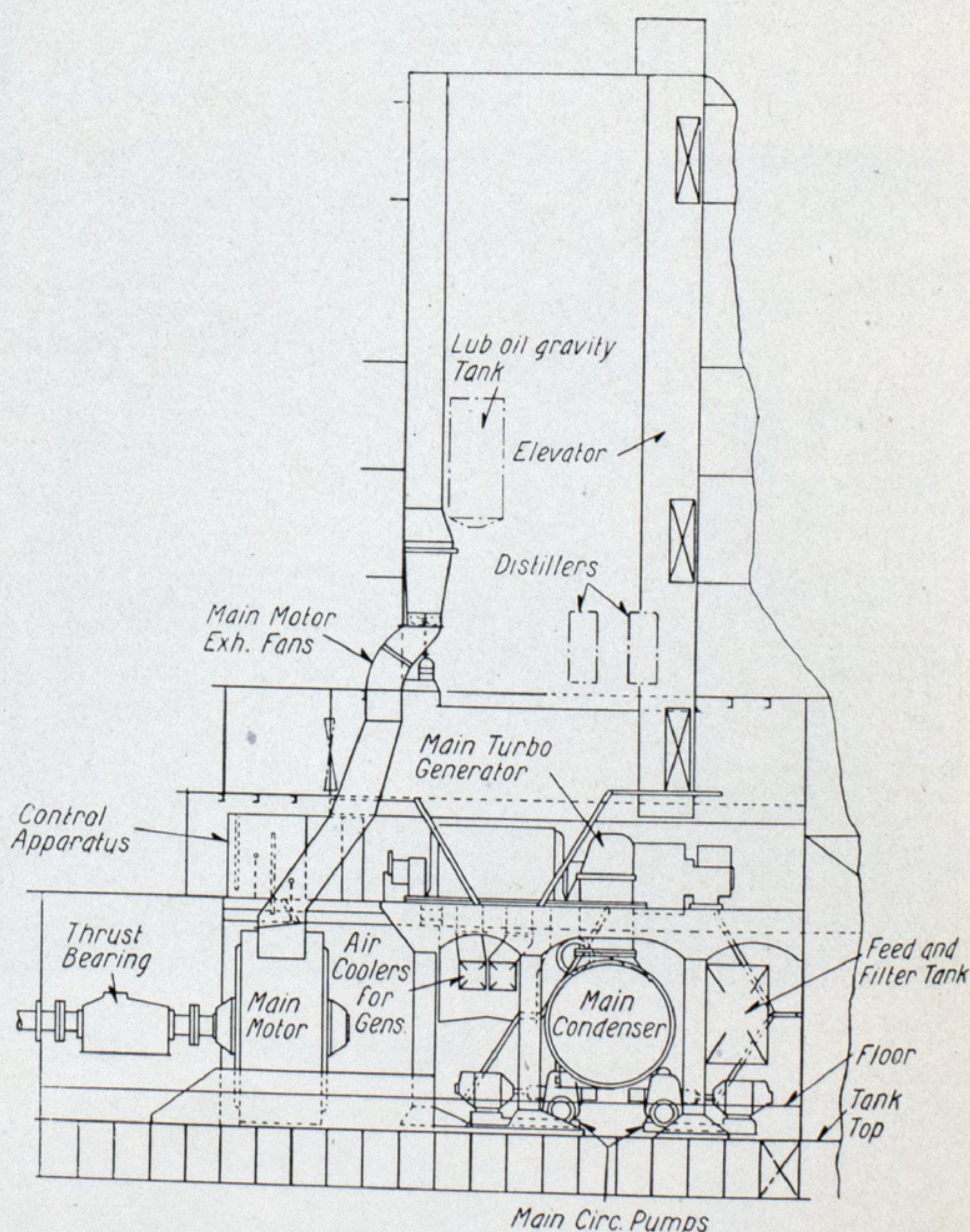
Cold storage rooms with a total capacity of about 20,000 cubic feet subdivided into nine compartments, are provided for ship's provisions. These rooms are located on the main deck and are arranged for loading through the same hatches as the refrigerated cargo and also through stowing ports in the vessel's sides, the ports being directly connected by an athwartship passage. On the main deck is a modern laundry with motor-driven appliances for washing and ironing ship's linen. A linen chute with openings on all stateroom decks is fitted for passing soiled linen to the soiled linen room adjoining the laundry.

All living spaces are heated by electricity or steam, mechanical as well as natural ventilation is provided, as well as running hot and cold fresh and salt water and electric lighting.

How completely fitted this vessel is for safety and economical operation may be seen by referring to the list of auxiliaries and equipment on page 28.



Engine Room Layout—Section at Frame 131, Looking Aft



Engine Room Layout—Elevation Portside, Looking Out-board

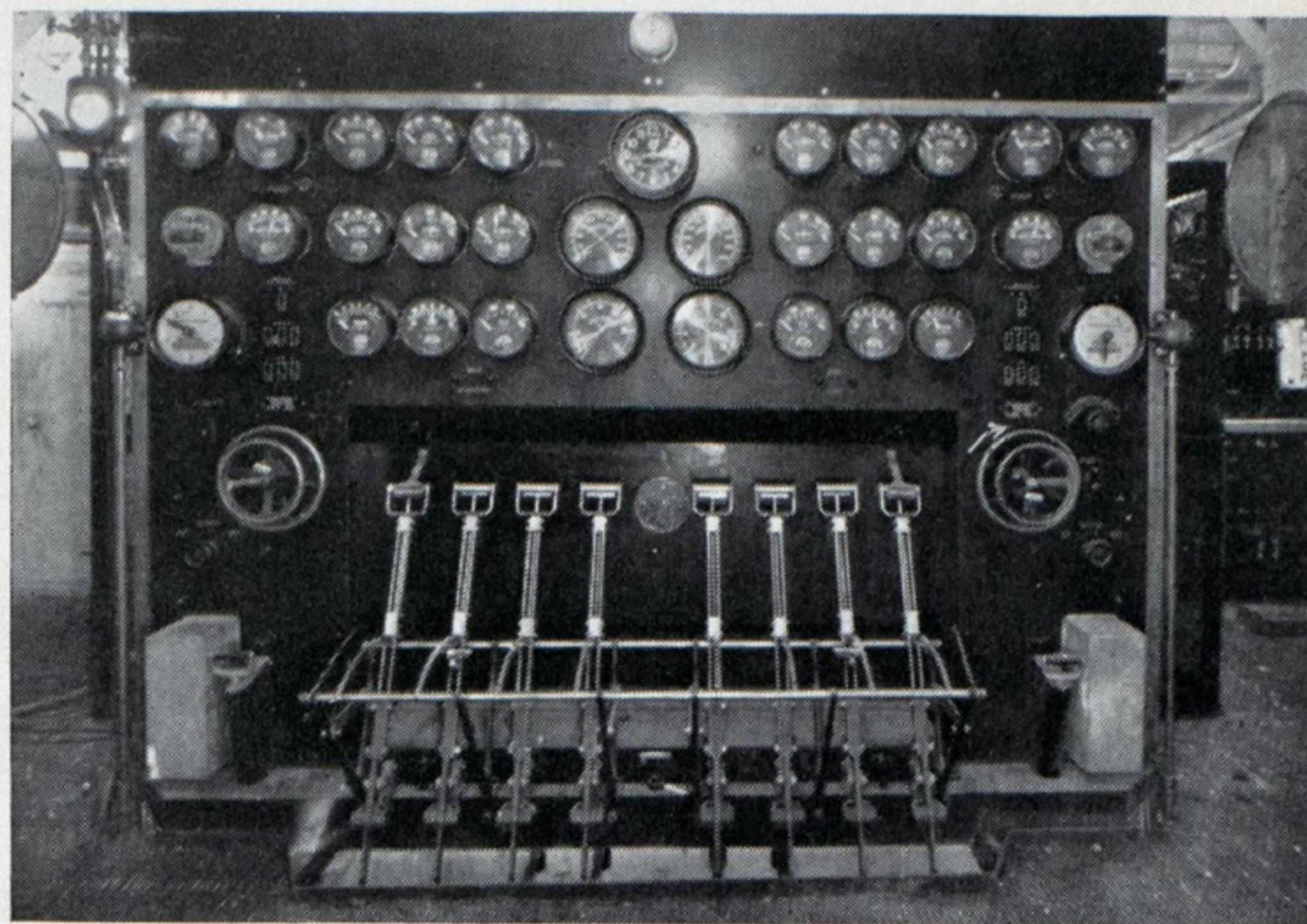


# Main Machinery, Auxiliaries

**T**HE main propelling machinery is of the well known steam turbine electric drive type arranged for driving twin screws. Each propeller is driven by a motor rated at 13,250 shaft horsepower at 133 propeller revolutions per minute. The complete electric propulsion equipment was supplied by the General Electric Co.

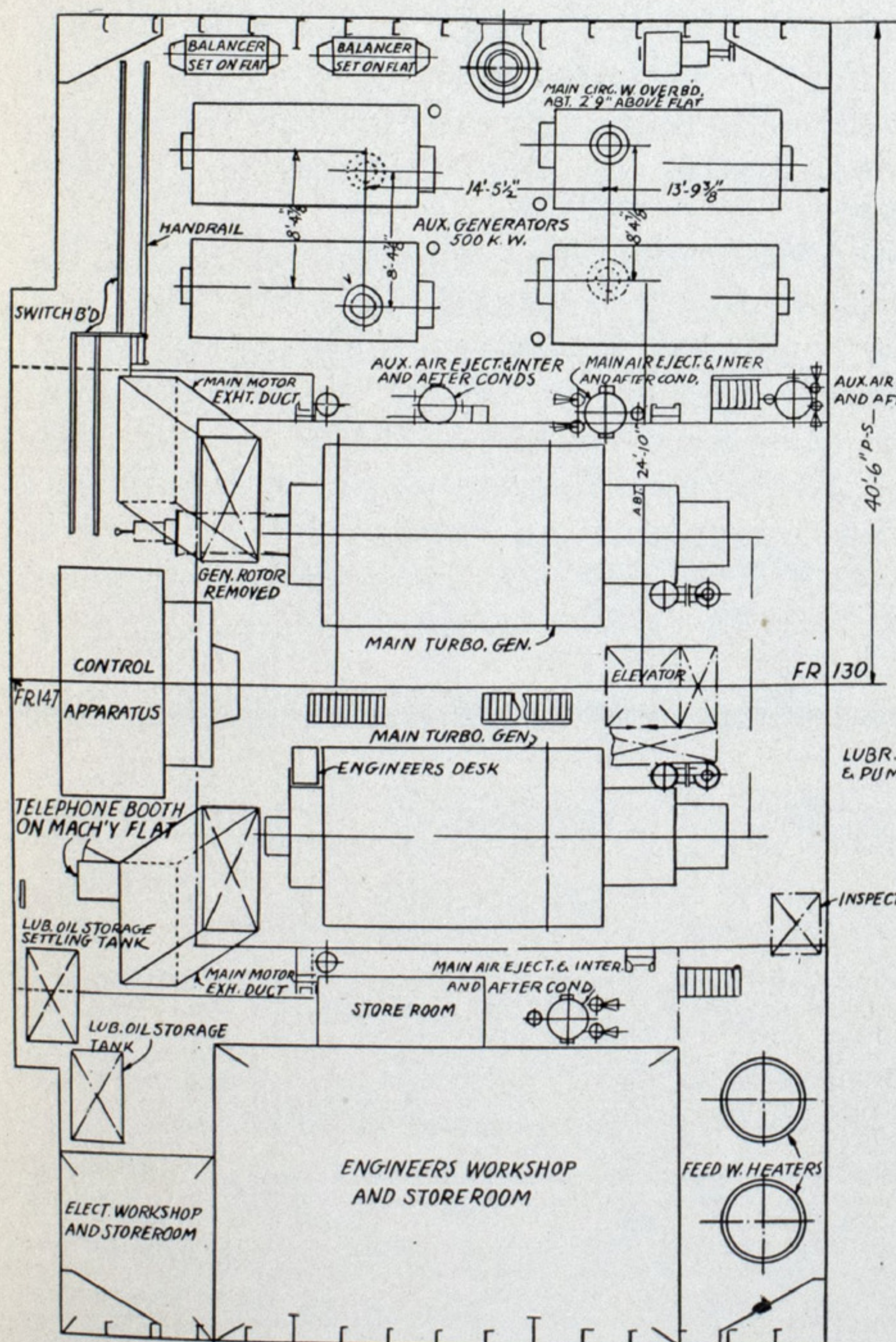
Power for propelling the ship is developed in two steam turbines, each direct-connected to an alternating current electric generator. The two generators supply current to two propulsion motors which are each direct-connected to a propeller. Current from the generators to the propulsion motors is controlled by means of various control apparatus mounted on a control panel.

The main turbines are of the downward exhaust type and are mounted directly above their respective condensers. The steam conditions at the main throttle valve are 275

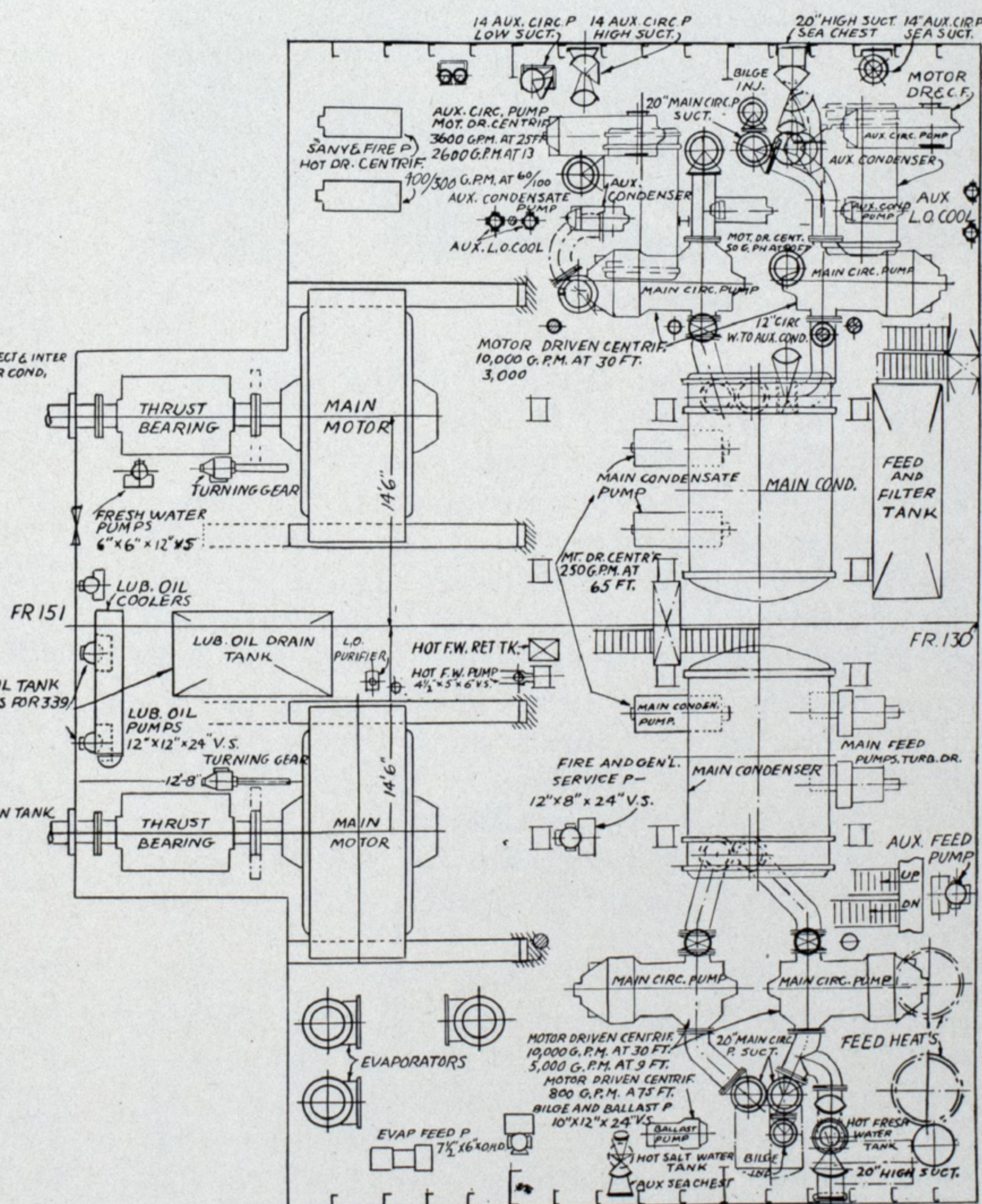


Instrument Board and Main Controls

pounds gage and 200 degrees Fahr. superheat and the vacuum at turbine exhaust is 28.5 inches. The primary consideration in the design of the turbines was that of ruggedness. The rotors are milled out of a solid steel forging and all wheels except the first are integral with the shaft. There are sixteen wheels all of which contain one row of blading, except the first which has two. The blading is of exceptionally heavy construction and the critical speed of the completed rotors is well above the highest running speed. The high pressure



PLAN OF MACHY. FLAT



ENGINE ROOM—MAIN PROPELLING MOTORS—ELECTRIC



## S. S. PRESIDENT HOOVER

head is of cast steel construction and the upper halves of both the high and low pressure casings are hinged to facilitate inspection.

Control of the steam flow is by means of the main throttle valve, and three subsidiary hand valves which permit minor steam flow adjustment without the necessity for throttling the pressure. The main throttle valve is remotely controlled from the main operating panel by means of a lever which actuates a hydraulic, oil operated mechanism. The hydraulic mechanism is inter-connected with the lubrication system and an over speed tripping device which cuts off the steam supply automatically in case of overspeed or cessation of oil supply.

The turbine may be controlled either for constant speed or for constant steam flow as desired. In the latter case the speed governor is set to function at a few revolutions above that obtained through the steam flow setting as reg-



*Main Switchboard in Engine Room*

ulated by the hand valves. In this manner it is possible to operate at full power even in rough weather, without danger of the propeller racing in case it should emerge from the water.

The turbine operates in but one direction of rotation and has but two steam sealing glands, one at each end of the turbine. There are two extraction openings for bleeding steam for feed water heating. The high pressure opening provides steam at 65 pounds gage pressure thus permitting of the attainment of 300 degrees Fahr. feed water temperature. The low pressure opening provides steam for the low pressure feed water heater at slightly above atmospheric pressure.

As the turbine generators are electrically disconnected during warming up, this process is greatly simplified. They may be allowed to idle at slow speeds under their own steam with the certainty that there is proper heat distribution. A hand turning device is provided for use when taking clearances, examining shaft bear-

ings, etc., but it is not otherwise used.

The main generators which are directly connected to the turbine shafts are of the totally enclosed, internally ventilated type, and are provided with external air coolers. Complete assurance against deposits of oil or dust on the windings is thus assured and therefore, long life of the insulation. The fan which circulates the air through the windings and thence through the air cooler is situated on the end of the rotor shaft. The tubes in the air cooler are supplied by circulating water from the main circulating pump discharge. The generator is of the two pole type.

The rotor is a solid steel forging and has slots milled in its face in which the field windings are imbedded. The stator frame is of built up steel plate construction. The core is made up of laminated plates in which slots are provided for the reception of the windings.

Electric heating coils are located inside of the inner shields for the prevention of moisture and accumulation on the windings during periods when the generator is idle. The temperature is kept at just slightly above room temperatures (2 to 4 degrees Fahr.) in order to prevent condensation.

The main propelling motors are of the highly efficient synchronous-induction type operating at unity power factor. The stator frames are of built up steel plate construction, and the rotor spiders of cast steel. Like the generators they are supplied with stator temperature detectors and heating coils for the prevention of condensation on the windings during idle periods.

The control panel has mounted on its face the various levers for maneuvering the ship, the rheostat control wheels for adjustment of the generator and motor fields and the instruments for measurement of power. In the upper center of the panel are situated the steam and vacuum gages and the clock.

Cross tie busses with switches are provided which permit of the parallel operation of the

---

## Electric Propulsion Equipment

### S. S. President Hoover

- Two Main Turbine Generator Sets**—Turbine rating; 10,100 k.w., 2660 r.p.m., 16 stages. Generator rating; 10,100 k.w., 2660 r.p.m., 4800 volts, 3-phase. Steam conditions at throttle valve; 275 lbs. gage, 200 degrees Fahr. superheat. Vacuum, 28.5 inches in turbine exhaust casing.
  - Two Main Propulsion Motors**—Synchronous induction type; rated maximum continuous, 10,100 k.w., 133 r.p.m., 4800 volts, 3-phase.
  - Two Propulsion Motor Ventilating Fans**—Motor rating; C.D.M.—125, 22/40 h.p., 600/740 r.p.m., 230 volts.
  - Two Surface Air Coolers for Generators**—One surface air cooler for each main generator, consists of two sections, each rated 2600 sq. ft. of cooling surface, 2-pass, 150 tubes.
  - One Control Panel with Two Control Groups**—Each group consisting of high voltage and low voltage contactors. The panel contains necessary electrical instruments, field-rheostat adjusting handwheels, electric speed indicators for motors and turbines, and the main operating levers.
-



two propelling motors from either main generator. Under this condition of operation, the turbine generator not in use, is shut down with its attendant condenser and auxiliary equipment.

The equipment is arranged so that one main turbine generator furnishes power for driving the port propulsion motor, and the second main turbine generator furnishes power for driving the starboard propulsion motor. Also, provision is made to allow either main turbine-generator to drive both the port and starboard propulsion motors at reduced speed (approximating 104 revolutions per minute).

The propulsion motors turn outboard when going ahead, the starboard propeller being right hand and the port propeller being left hand.

Variation in propeller speed in either direction is obtained by varying the turbine speed, and is directly under the control of the operator at the control panel. The direction of rotation of the propeller is reversed by changing the relationship of two of the three phases leading to the motors; this is accomplished by means of contactors operated by levers located at the control panel. The turbine generators always rotate in the same direction but, with both in operation, the speed of either propeller may be varied or reversed irrespective of the other. When one turbine generator is used for driving both propulsion motors, both motors operate at the same speed; this is true even though both motors are not rotating in the same direction.

When starting, the turbine generators operate at approximately one-quarter speed, and the propulsion motors are brought to approximately one-quarter speed operating as induction motors. The field windings of the generators are temporarily over-excited to bring the motors fully into synchronism, after which normal excitation is used.

Two separate electric motor driven blowers furnish ventilation for the main propulsion motors (one blower for each propulsion motor). The blowers for ventilating the main generators are built into the generator rotors.

A supply of direct current for excitation of the main generators and propulsion motors is provided by any one of the four 500-kilowatt, direct current geared turbine generator sets.

### Main Control Equipment

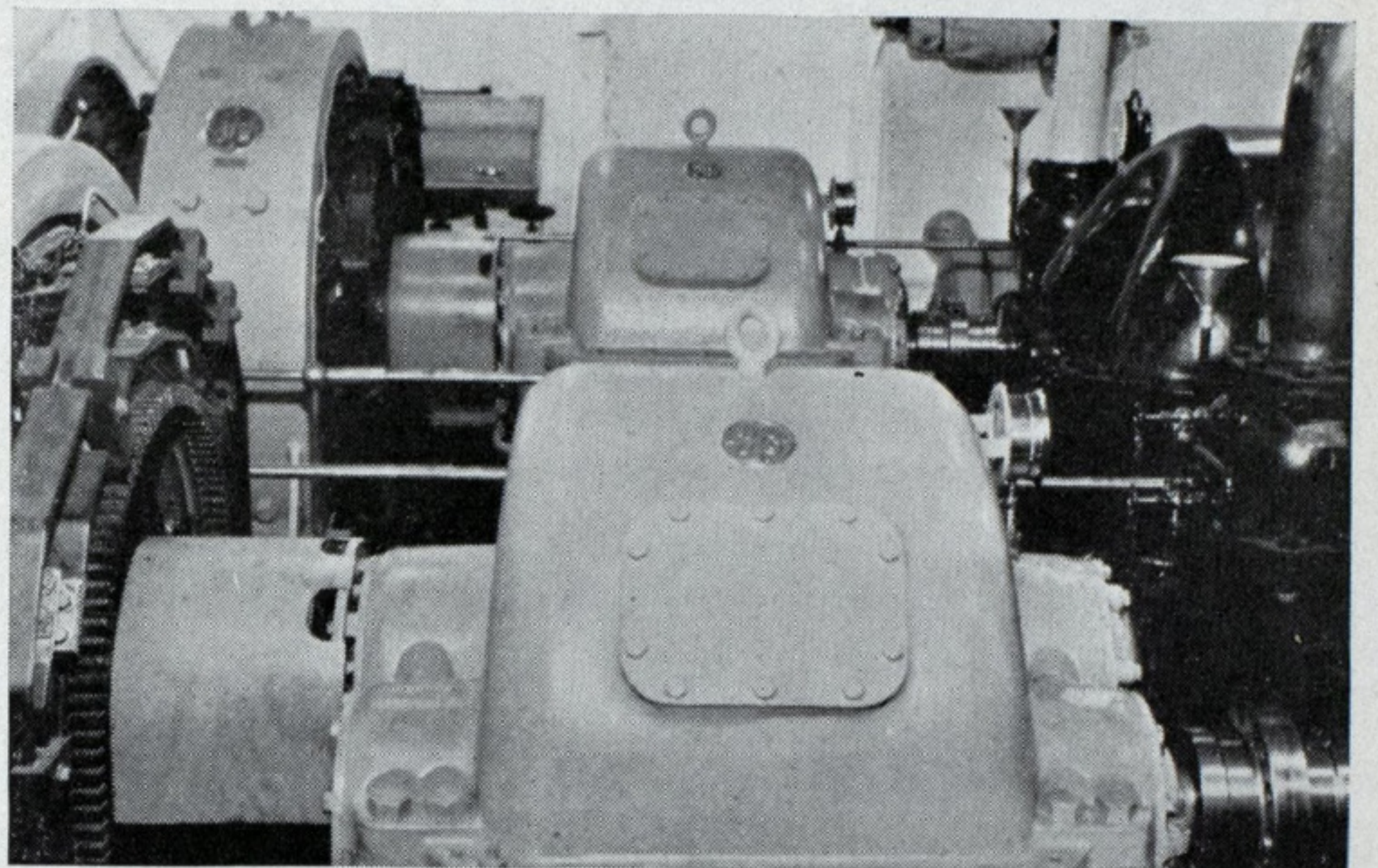
**T**HE main control panel with levers, hand-wheels, instruments, etc., is shown in an accompanying illustration.

The reversing levers on front of the control board reverse one phase when going astern. The governor levers adjust the speed of the main turbines to obtain desired propeller

speed which is one-twentieth of the turbine speed. In addition to the regular governor levers there are two emergency speed control levers, mechanically connected to the turbine governors in case of failure of the main levers.

By means of the field levers excitation is applied to the generators and motors, the first point of the lever applying excess excitation to the generator for pulling the motor in step as an induction motor, the second point applying field to the synchronous motor with excess excitation remaining on the generator and the third point reducing the generator excitation to normal leaving excitation on the motor fields.

All the above levers are completely interlocked to avoid improper operation and to avoid operating the high voltage contactors with field on even though these contactors are capable of such operation.



*Two 500 K.W. Auxiliary Turbine Generating Sets*

On this control board are provided hand-wheels for controlling generator and motor field rheostats, switches for measuring on the temperature indicator the temperature of the generator and motor stators at three different points around periphery and switches and rheostats for controlling the main motor ventilation fans.

There is provided a complete outfit of instruments by means of which the operator can visualize the behavior of the various machinery and know exactly how it is performing. By means of these instruments and meters the amount of power is indicated for any condition of running or maneuvering and the power is also recorded for any trip or part of a trip.

The main boiler plant consists of twelve Babcock & Wilcox standard marine type water-tube boilers, arranged three abreast in two fire rooms with the drums athwartship. The boilers are built for a working pressure of 300 pounds per square inch and 200 degrees superheat. The total water heating surface is about 57,600 square feet, and the total superheating surface about 5700 square feet. Each boiler



## S. S. PRESIDENT HOOVER

is fitted with four Babcock & Wilcox Cuyama burners for burning oil fuel under cold forced draft. The boilers are especially insulated for the conservation of heat. They are fitted with Babcock & Wilcox automatic feed regulators and Diamond soot blowers. The uptakes from all twelve boilers connect to the forward stack, the after stack being used for ventilation. The drums of the three forward and three after boilers are fitted with coils for desuperheating the steam required for the saturated steam auxiliaries.

Three Griscom-Russell fuel oil heaters are fitted in each boiler room, two of which have sufficient capacity to heat the total amount of oil which will be burned at full power in one boiler room. There is one Quimby horizontal motor driven fuel oil pump in each fire room capable of supplying the oil burned at full power in one fire room. Two Warren steam driven vertical simplex pumps are supplied as stand-bys. Air is delivered to the burner fronts through ducts on the open fire room system by Sturtevant motor driven "Silent-vane" fans.

### Main and Auxiliary Condensers

**T**HE condensate is drawn from the main condensers by a condensate pump which discharges through the air ejector condensers to the feed tank. All the latent heat of ejector steam is thus conserved, no raw water pass being fitted. There are two Warren three stage centrifugal main feed pumps each driven by a Terry turbine. Each main feed pump has sufficient capacity to supply all the boilers at full power. There are also three Warren independent steam driven vertical simplex auxiliary feed pumps, one in the engine room and one in each fire room.

The feed pumps draw from the feed tank and discharge through two Davis heaters arranged in series and having sufficient capacity to heat the feed water to 300 degrees Fahr. The first

stage heater utilizes the exhaust from the steam driven non-condensing auxiliaries, augmented by steam bled from the eighth stage of the main turbines. Steam for the second stage heater is bled from the third stage of the main turbines.

Each main generator turbine is served by a 14,000-square feet two pass surface condenser located immediately below the turbine. The condensers are supported on flexible beams so designed as to insure protection for the turbines from undue stresses due to the weight or vertical expansion of the condensers. Circulating water is supplied to each condenser by two motor driven Warren single stage centrifugal pumps each having a capacity of 10,000 gallons per minute. Each condenser is served by two two-stage sets of Westinghouse air ejectors mounted on a combined inter-and-after condenser. Each ejector set has sufficient capacity to remove the air from the condenser which it serves when the propelling machinery is developing full power, the other set being used for a spare or in case of abnormal air leakage. Three Warren 250 gallon per minute motor driven centrifugal main condensate pumps are fitted, one pump serving each condenser and the third pump being used as a stand-by. The duplication of the main circulating pumps and air ejectors, and the spare condensate pump, reduce to a minimum the liability of failure of the condensing plant.

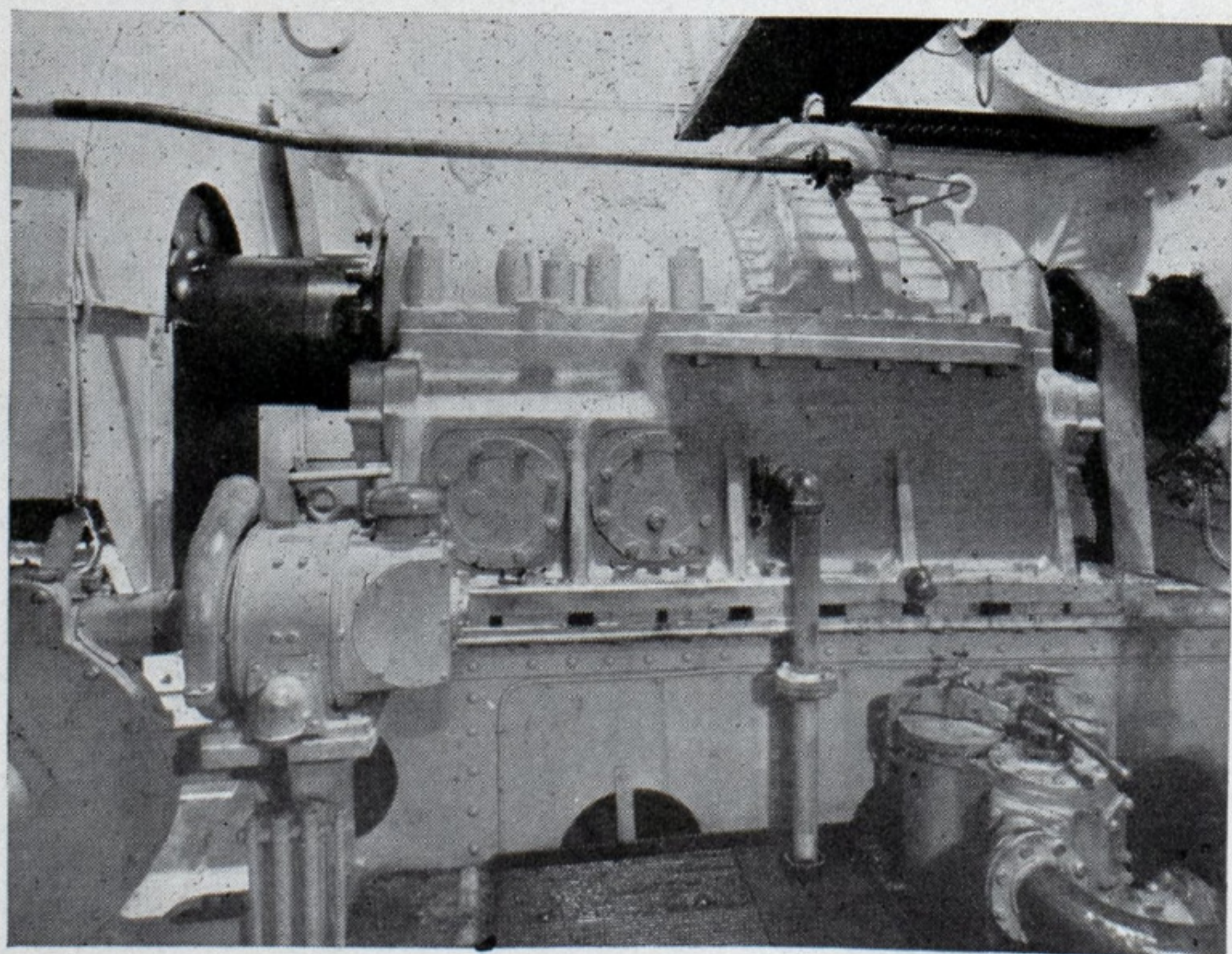
The auxiliary condensing plant is in general similar to the main plant. In order to insure uninterrupted service for the auxiliary generators, which are of course vital to the operation of the main machinery, two condensers are provided, one serving the forward pair and one the after pair of the 500-kilowatt generator turbines. One 3600 gallons per minute Warren single stage centrifugal motor driven circulation pump serves each condenser. Twin Westinghouse air ejectors with inter-and-after condensers are fitted, similar to the main plant. Three 50 gallons per minute Warren motor driven centrifugal condensate pumps are fitted, one to serve each condenser, the third being a stand-by.

### Four Auxiliary Generating Units

**A**LL of the motors for the above auxiliaries, as well as practically all motors throughout the ship are of General Electric Co. make.

The propellers are of the built up type 18 feet 6 inches in diameter, each having three manganese bronze blades and a semi-steel hub. The blade sections are of the standard ogival shape.

The auxiliary generating plant consists of four steam turbines rated at 500 kilowatts, 4779 revolutions per minute, 5 stages connect-



*One of the Two Main Shaft Thrust Bearings*



ed through gears to four 500 kilowatts, 90 revolutions per minute, 120/240-volt generators. The turbines operate at 300 pounds gage and 200 degrees Fahr. superheat. One of them is arranged for non-condensing operation at reduced load with 175 pounds gage steam pressure and 15 pounds gage back pressure. The generators are of the modified 3-wire type each having a compensator for supplying the excitation neutral bus.

The neutral for the 115/230 volt 3-wire lighting system is supplied from two 300-ampere rotary balancer sets arranged for operation singly or in parallel.

The main direct current switchboard consists of thirteen panels, the overall dimension being 29 feet 8 inches long by 7 feet high, exclusive of the blank filler sections at the top.

For control of auxiliaries which cannot be conveniently supplied directly from the main direct current switchboard, twelve power distribution panels are installed about the ship.

A total of 187 motor driven auxiliaries are installed with an aggregate rating of considerably more than 3000 horsepower. The motors are, in general, of the enclosed ventilated drip proof type for under deck auxiliaries and en-

closed waterproof for deck auxiliaries. Practically all controllers are of the magnetic contactor type with drum type master controllers for the cargo winch and warping capstan motors and push button control for others.

The emergency lighting and power system consists of two 15 kilowatts, 120/240-volt, 3-wire direct current generators each directly connected to a gasoline engine, also a 140 ampere-hour 240 volt (120 cell) storage battery. The battery is installed primarily as a final reserve for the radio but its capacity is sufficient to supply also the emergency lights for about one-half hour. Upon failure of the main supply the emergency bus is immediately transferred to the battery by an automatic throw over switch. A special manually operated switch is provided whereby the radio system can be supplied from the battery.

Power from this emergency plant is also available for the gyro compass, running lights, 18-inch searchlight, whistle operator, fire alarm, and watertight doors.

There is a total of 50 miles of electric lighting and power cable ranging in size from 1/4-inch to 2 inches in diameter and containing a total of 750 miles of copper wire.

## Standardization, Sea Trials

IT IS not customary to conduct exhaustive sea trials for merchant vessels such as are demanded for ships of the navy. In this respect, therefore, the S. S. PRESIDENT HOOVER has established a unique record. It was determined to carry out careful standardization trials and a continuous run at sea in order to determine accurately, speed, power, revolutions and fuel consumption. The results were highly satisfactory and gave proof of skilful design of hull and machinery showing that the estimates were well founded and conservative. The data obtained is of great value to the science of naval architecture and marine engineering as it has heretofore seldom been available in such completeness and with such a degree of confidence in its accuracy.

The S. S. PRESIDENT HOOVER sailed from the plant of the Newport News Shipbuilding and Dry Dock Co. at 5:00 a.m., Tuesday, June 16, 1931, for her official trials off Rockland, Me.

The vessel made the run to Rockland at an average speed of about 20 knots except for a few hours during the early morning of June



*On Board the S.S. President Hoover During Standardization Trials off Rockland, Me.—Left to right—Mrs. J. Harold Dollar; Capt. Roger Williams; J. Harold Dollar; Mrs. K. Ferguson; and Capt. C. A. McAllister*

17 when she was slowed down on account of fog. Preliminary data obtained by observing the speed between Chesapeake light vessel and Winter Quarter light vessel indicated that the ship would exceed her guaranteed speed of 20.5 knots at the designed shaft horsepower of 26,500. It was also evident that the fuel



## S. S. PRESIDENT HOOVER

consumption would be considerably under the guaranteed figure.

Although somewhat delayed by the fog the vessel arrived in Rockland harbor practically on schedule time and was anchored off the breakwater by 6:45 p.m. Wednesday, June 17.

The anchor was weighed before daybreak the following morning, June 18, and the vessel left the harbor at 4:00 a.m. proceeding to the United States navy measured mile trial course off Monroe island for standardization.

The trial was conducted in practically all respects like a United States Navy official standardization trial. A series of runs were made over the course at each of five speeds from about 15.5 knots to 20.5 knots. These were followed by five runs at maximum power. The averages for the five high speed runs were



**CAPT. FRED E. ANDERSON** appointed master of the S.S. *President Hoover*. During his service with the Dollar line he has commanded vessels of the round-the-world line coming from the *President Wilson* to his present berth. His new command places him in the first rank of American ship masters

21.56 knots, at 141.5 revolutions per minute and 31,050 shaft horsepower.

The final run of the series at maximum power was concluded at 2:20 p.m.; the vessel then made a brief stop to pick up the photographic crew, and proceeded to sea for the eight hour economy run at rated horsepower.

### Economy Run at Rated Horsepower

**T**HIS run was started at 4:00 p. m. and continued without unusual occurrence until its schedule completion at 12 midnight. The average shaft horsepower on this trial was 26,495 and the average revolutions per minute were 134.4, corresponding to a speed from the standardization curve of 20.83 knots. The fuel consumption for all purposes for the eight hours corrected for a thermal value of 18,500 British thermal units per pound was .669 per shaft horsepower of the main propulsion motors. The same accurately calibrated measuring tanks were used on the *PRESIDENT HOOVER* as had been used on the penalty trials of the United States cruisers *HOUSTON* and *AUGUSTA*. Samples of the oil were taken throughout the run

in order to determine the average calorific value and specific gravity.

The fuel oil per shaft horsepower compares favorably with the trial and service records of the most modern steamships, particularly when the conservative boiler pressure and temperature are taken into account, and also the fact that the boiler plant in particular involves no unusual refinements or complications.

The utmost care was taken in determining the shaft horsepower developed throughout the trials. In addition to the indicating watt meters and watt hour meters, voltmeters and ammeters regularly fitted on the control boards, special precision instruments especially calibrated for the trial were installed.

### Fuel Economy Proves Satisfactory

**A**FTER the eight-hour run the vessel proceeded toward Newport News, Va., at about 20.5 knots. The following morning, June 19, the port generator and the after fire-room were secured and the ship proceeded for several hours using only half of her machinery plant and making a speed of over 16.5 knots. The fuel economy under this condition was very satisfactory, being about 0.78 pounds per shaft horsepower per hour.

The single generator trials were concluded at 2:15 p. m. and the vessel continued on her course at about 20 knots until about 4:00 p. m. when she was in the vicinity of Fenwick Island light vessel. The customary anchor windlass and steering trials were then satisfactorily completed and the vessel proceeded towards Winter Quarter light vessel at about 20 knots.

Winter Quarter light vessel was passed at 7:57 p. m. and Chesapeake light vessel was passed at 11:22 p. m., June 19. This run and the similar run on the way to Rockland, Me., were made as a comparison of the vessel's speed in shallow water with the results of the standardization trial held in deep water. After passing Chesapeake light vessel the ship proceeded to anchorage in Lynnhaven roads, dropping anchor at 12:52 a. m., June 20.

The anchor was weighed at 5:55 a. m., Saturday morning, June 20, and the vessel returned to the shipyard, docking at 7:30 a. m.

Certain additional equipment of engineering interest was installed especially for the trial including a Bailey steam meter in the steam line for checking the turbine steam rate and special thermometers, mercury columns and an air meter to check the performance of the main condensing plant. A Kempf log for determining speed, based on the principle of tension, was also rigged and tried out.

Frank Littlefield, long in the service of the Dollar line, has been appointed chief engineer.



## Arrangement and Decoration

(Continued from Page 22)

tables with fibre tops and large flower boxes of brass and stainless steel. Floor lamps of usual design with frosted glass shades; ceiling fixtures give white or red, yellow and green light. The floor is the ship's caulked teak deck finished for dancing.

Adjoining the marine tea garden is the soda fountain room finished in color. The wall panels are decorated with conventional designs in flower and fruit above a paneled wainscot with molded chair rail and are set off by wide full height pilasters with applied moldings in modern designs. The doors are of teak with painted trim and applied decoration above head casings. The windows are of sliding type with frameless glass arranged to drop into pockets in the joiner work. A flush panel ceiling is fitted overhead.

The soda fountain, which is located in the center of the room and has three service sides, is finished in African walnut, with yellow Siena marble top, black and gold marble step and baseboard, and red tiled back bar; all fixtures are chromium plated. The revolving stools around three sides are finished in black and green enamel with green upholstered tops. At the sides of the room are upholstered settees finished in color to match the walls, besides service tables with inlaid linoleum tops.

Opening off the after boat deck lobby is a delightful children's playroom attractively furnished with small wicker armchairs, settees, and tables and quaint painted settles with high backs.

A completely equipped gymnasium for first class passengers is located on the port side of the after boat deck lobby, provided with adjoining toilet and shower and connected with a therapeutic room with electric bath, ultra violet ray and massage facilities.

### Entrance Lobby and Stairs

**T**HE first class main entrance foyer on the upper deck just forward of the main dining saloon, is entered through a vestibule at each side of the vessel in way of the entrance ports in the hull. The main passenger stairway leads up from the after end of the lobby, at the center of the ship and at each side of the stairs there is an electric passenger elevator serving the various decks above.

Walls and ceilings are paneled in framire with white birch paneled strips and African mahogany trim. The paneled ceiling is fitted below the beam and the ceiling panels in the stairway recesses are of special design with matched and quartered grain. The forward end is decorated by a gilt frame mirror between special

tubular lighting fixtures of white glass and polished brass. Lighting is by overhead and wall fixtures and by floor and table lamps on polished brass pedestals. The furnishings include upholstered chairs, settees and occasional tables in walnut.

In way of passenger stairs all first class lobby walls are finished in panels of avodire between narrow panel bands of satin wood with yellow poplar molding. Elsewhere the walls in way of the shelter, bridge, and boat decks and in way of the promenade deck aft, are flush paneled in framire with strips of white birch.

A feature of the forward stair lobby on the bridge deck is an elaborate novelty shop with curved plate glass front, African mahogany counter and outside trim, and glass shelved showcases lined with silvery gray harewood.

Passenger stairs are of decorative type in keeping with the design of the lobbies in which they are located. The main stairway leads from the first class foyer on the upper deck to the lounge lobby on the promenade deck, continuing by a separate flight, to the forward boat deck lobby, and a similar stairway leads from the after first class lobby on the bridge deck up to the after boat deck lobby.

### Special Class Public Spaces

**F**IRST class passages between public spaces on promenade deck have walls flush paneled full height with light Philippine mahogany in checkered patterns with alternate horizontal and vertical grain. There is a baseboard and narrow cornice of the same material, the cornice having alternate gold leaf and hardwood finish. The pilasters are also of light Philippine mahogany with inset panel finished in gilt. The ceilings are flush and painted. Windows are of metal casement type.

Though less elaborate than those in the first class, the special class public spaces are unusually attractive and roomy. The lounge and smoking room are located in special houses on the sheltered weather deck aft of the bridge enclosure thus securing a maximum of light and air. They are reached by spacious stairways from the lobbies below as well as by entrances from the deck.

The special class smoking room follows modern design and the walls are finished in raised panels of dark Philippine mahogany with cornice and trim of same material. The beams are cased with Philippine mahogany and ceiling is fitted between the beams in painted panels. Furnishings include walnut top tables on metal pedestals, walnut cabinets with carved fronts, overstuffed settees, walnut chairs upholstered in leather and marble top smoking stands.

Lobbies and passages in this class are paneled full height with rubbed enamel finish similar to that in first class passages.



# Marine Review

## August 1931



*New Matson Liner Mariposa Launched July 18 at Fore River Yard of Bethlehem Shipbuilding Corp., Quincy, Mass.*

## « EDITORIAL »

### Higher Cost of American Ships Offset by Government Aid

COMPLETION of the S. S. PRESIDENT HOOVER, the largest and highest powered merchant ship so far built in the United States and the launching of the S. S. MARIPOSA, first of the Matson liners, another large ocean going vessel, emphasize the recent expansion of American shipbuilding. Both vessels are concrete examples proving to the world at large our ability to design and build ocean liners of the larger and finer type.

In Lloyd's returns on world shipbuilding during the quarter ended June 30, a decline of about 175,000 gross tons is indicated as compared with the quarter ending March 31. In sharp contrast with this condition an advance of 70,000 gross tons is shown for the United States during the same period, giving a total of 301,489 gross tons which is a higher point than at any time since the ending of the war-building boom. It is more than double the total for American shipyards in the period just before the war. This increase is due entirely to the merchant marine act of 1928.

Fortunately there is a definite commercial objective in back of this shipbuilding which the great program during the war lacked. Every one of the vessels now being built have been designed especially for and will go in service on trade routes vital to the commercial and social relations of the United States with the outside world. The compensation given to the operator in the form of yearly mail payments should offset any differential in operating cost between American and foreign ships, due to our higher standard of living.

To the operating cost must also be added capital charges. The difference in such charges due to the first cost of similar ships, American and foreign, must be absorbed for parity in total operating cost. The favorable terms of the construction loan proviso should make up for this difference in first cost or nearly so.

All American lines that have received mail contracts for specified services and where the contract calls for new ships, also government loans up to 75 per cent of the cost at a rate of interest of 3 and a fraction per cent, would seem to have no reasonable cause for complaint. When therefore, a well known steamship executive, on his return from a European trip, makes the statement that the difference



in the cost of shipbuilding abroad and here is so great that it is not offset by the construction loans and other aid given by the government it might be well to check up to see whether this is correct or not. For if it is correct there must be something radically wrong in the management of our shipyards for all the difference in wages which prevail here and in Europe.

This returned shipping man is reported to have said that considering a 10,000-ton passenger and freight ship, one of the largest and best known foreign shipyards offered to build two ships to these specifications for 70 per cent less than the cost would be in the United States. This is obviously a grand gesture. It is difficult to believe that an American business man would be so credulous. The simplest calculation, as pointed out by H. G. Smith of the National Council of American Shipbuilders, will prove its absurdity. It means that for a vessel costing \$1,700,000 in the United States, the foreign shipbuilder would be satisfied with 70 per cent of this amount less than the American figure, or \$510,000.

It may be, as the head of the National Council of American Shipbuilders points out, that tentative figures of a ship costing \$1,000,000 abroad would cost \$1,700,000 in the United States or that for these preliminary figures the American ship would cost 70 per cent more than the foreign built ship. This is not the whole story, however. It is certain, in order to make any such favorable comparison that many of the standards and ideas of the foreign shipbuilder would have to be reluctantly accepted by the American owner and that in the end he would not have a tool as well fitted to his purposes as he would have in the more expensive American ship.

Since competition in shipbuilding in the United States is keen it must be accepted that the lowest bid received represents a fair price based on actual cost. Higher wages and higher salaries for technical and supervising staffs must be met just as they are in all other industries. The investment in plant and machinery for a first class American shipyard is undoubtedly greater than for a similar shipyard abroad. Man for man, the American shipyard worker will hold his own with any foreign worker.

By all means, the American shipowner should have the lowest reasonable price for new ships, but it must be recognized that in the building of ships as well as in operating them, there is and there must continue to be a substantial difference as compared with foreign costs and that the aid given by the government reasonably makes up for this difference. Interest charges on three-quarters of \$1,700,000 at  $3\frac{1}{4}$  per cent, we will say, is 41,437.50. Taking the interest rate of the first 25 per cent which the shipowner has to find on his own ac-

count at 7 per cent, the aggregate capital charges would be 71,187.50, whereas at 7 per cent for \$1,000,000, taken to be the price of a similar ship abroad, the foreign shipowner's capital charges would be \$70,000 a year.

Since these figures are based on a liberal difference in cost for supposedly equally suitable vessels, it is difficult to see why the aid given in the construction loans and in mail contracts should not be quite ample to place the American shipowner on a complete parity with his foreign rival. What we do need is to extend the benefits of the Jones-White law to encourage the building of fast modern freight ships for use in foreign services not already covered by present mail contracts and those under consideration.

## Scrapping Old Vessels by Agreement

IN THIS modern day we have learned to be ruthless in regard to old and obsolete tools.

Remarkable stories are told where machines have sometimes become obsolete between the time of purchase order and final installation in shop or factory. The idea seems to be that if there is a better tool it is economically unsound to continue the old even though but recently acquired.

When at a time like this the entire world is suffering from a tremendous excess capacity of cargo and passenger space for the greatly reduced demands it would seem to be a wise policy to agree to scrap the older obsolete units. A recent report of the British board of trade's committee on obsolete tonnage indicates that it would be both difficult and impracticable at this time to come to any agreement on scrapping old tonnage in order to aid the British shipbuilding industry.

The committee's conclusions were briefly: that it would be impossible to devise any scheme either for scrapping only or for scrapping combined with replacements that would secure financial support from the industries concerned that would be practicable to carry out and that would operate equitably between individuals. It is the committee's opinion furthermore, that any scheme involving either replacement or restriction upon the shipowner's freedom of sale even if practicable, would not be in the national interest.

Findings of the committee point to the sensitiveness of shipping to the revival of trade and that if the older tramp steamers were destroyed British companies would be deprived of their share of the rougher general cargo business. Statistics are quoted to show that British merchant ships compare well with ships of other nations in respect to age. Also that under the present system a natural balance is maintained in regard to obsolete tonnage.



# Our Commerce Must be Independent of Foreign Shipping Lines

By Robert C. Hill

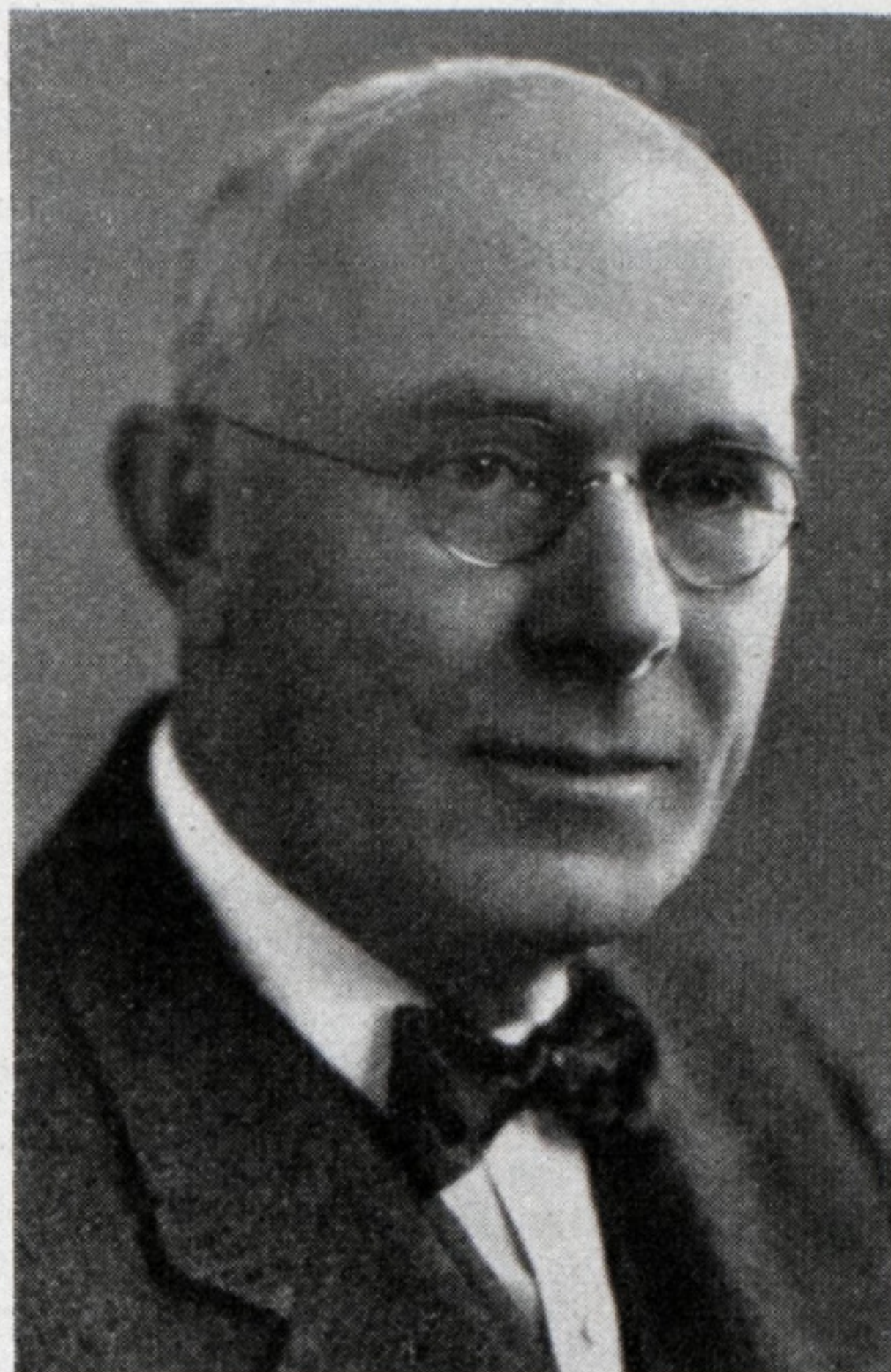
---

LET it be clearly understood that there is nothing either jingoistic or chauvinistic in a pro-American merchant marine policy. We recognize and will always respect the rights of all nations on the seas, but we propose to hold tenaciously to the principle of encouragement for private initiative in building up American overseas shipping services so that our commerce will not be wholly dependent on foreign carriers.

Jefferson Myers, recently reappointed shipping board commissioner from the Northwest, is a staunch supporter of a privately owned and operated merchant marine.

Editor's Note

---



Commissioner Jefferson Myers

THE whole world knows that the United States has adopted and is attempting to carry out a merchant marine policy of aid and encouragement to private interests in building up an overseas merchant marine. The success or failure of this policy will depend in a great measure on the character of those selected to carry it out. All friends of an American merchant marine will therefore commend President Hoover's reappointment on June 5, of Jefferson Myers as shipping board commissioner.

Since his first appointment by President Coolidge, June 15, 1926, he has worked with great energy for building up an efficient and adequate privately owned American merchant marine. He has studied the problems of shipping, the disposition of government owned tonnage, the most practical and effective measures for aiding private interests in establishing modern services with up-to-date modern ships capable of competing with foreign rivals. There is nothing narrow or parochial in his attitude. While capably serving his own section he has always considered the interests of the nation as a whole. He has encouraged the organization of regular services on the Pacific. He has been persistent in his efforts for the establishment of American lines between the North Pacific and Europe.

"It is exceedingly unwise," Commissioner Myers said in urging American lines from the North Pacific to Europe, "to have the commerce of so large a section of our country almost wholly dependent upon foreign owned shipping lines. If, through some crisis, the refrigerated foreign ships were to be withdrawn from the Pacific coast service, the vast fruit crop which amounts to millions of dollars would be left without any transportation other than by rail shipments from the Pacific to the Atlantic, thence by water to European markets and would lie on the docks to rot, with millions of dollars lost to the fruit growing and other industries of the Pacific coast."

When largely through his efforts the shipping board retired from operations on the Pacific, one of the com-

panies organized to take over government tonnage, was the Tacoma Oriental Steamship Co., a community enterprise. In commenting on the enthusiasm of Tacoma citizens in establishing a regular service under private ownership and operation, Commissioner Myers said:

"If everyone of the ports of this country emulated your example, the problem of building up a merchant marine would be greatly simplified. I am interested in your project for a dependable American service with Tacoma as its home port to take care of your local requirements. One of the ways in which all can help this local and semi-public enterprise is to make it a point to specify that all incoming shipments from the Orient over which you have any control, shall be shipped via the Tacoma Oriental line."

The problems of the American merchant marine have been summarized by Commissioner Myers as follows.

"Successful competition in the world's market is predicated on the delivered price of a commodity in first class condition and in the shortest time. These requirements can only be fulfilled by a nation owning and controlling its ocean transportation, therefore, one of the most vital issues confronting the American people today is the question of providing the nation with adequate sea power. This affects the welfare of the entire American people, both from the standpoint of peace and prosperity."

Jefferson Myers was born in a log cabin at Scio, Ore., Aug. 8, 1863. His mother, born in Hillsboro, N. C., crossed the continent in a covered wagon at the age of eleven with her parents and settled in Oregon territory. His father, David Myers, left Youngstown, O., in 1847 for California via Panama in search of gold. He was the eldest of 12 children and helped to rear his brothers and sisters. He attended Willamette university at Salem, Ore., where he studied law, earning his way through school. He was admitted to the bar in 1880.

Among the public positions of trust and honor he has held was that of president of the Lewis & Clark Centennial Exposition commission in 1904.



# Build New Cargo Vessels to Relieve Unemployment

**A**N EMINENT publicist recently broadcast his idea of relief for the unemployment situation in this country. This was given a great deal of space in the daily press on the following morning. Briefly, his scheme was for the Government to issue five billion dollars worth of bonds, the money to be used in erecting public buildings, digging canals and making new highways. While the principle of this may be fairly sound, his scheme would hardly be found satisfactory, even if congress should take the matter seriously. The federal government has already made large appropriations for public buildings and there are at present new roads building and contemplated for the current year amounting to one and one-half billion dollars, to be financed by the federal and state Governments jointly. In the State of Louisiana alone, authority has been granted to build 3,200 miles of new roads. While no one can decry the great usefulness of the fine highway system which we now have and hope to better, there are other more urgent needs for the expenditure of public money which will be of the greatest assistance to the industries of this country. Notably among these is the urgent need for a number of cargo vessels and, after all, ships on the ocean are but an extension of roads on the land.

The vast fleet built for the shipping board during and after the war has now practically disappeared, as only 200 idle and practically obsolete vessels of over 2,600 built during that program remain in the hands of the government. The best of the fleet has been used in establishing steamship lines to various ports in the world, the majority of which are now in private hands. While the Jones-White bill has made a splendid start in providing modern and efficient ships of the combined passenger and freight types, nothing has been done thus far towards replacing our antiquated cargo ships with fast modern freighters, which after all must always form an integral part of a successful merchant marine. The problem has received the attention of shipping men and of the maritime branches of the government but no real solution has yet been reached, although agreements have been arrived at as to the type

This statement by Capt C. A. McAllister, president of the American Bureau of Shipping, is quoted in full from the July-August *Bulletin* of the American Bureau of Shipping.

desired, and preliminary plans drawn up to meet the general requirements.

In the interests of the farmer and the manufacturer, there must be provided in a very short time a considerable fleet of these modern freighters to meet the demands of our foreign trade. There are certain seasonal movements of commodities which must be provided for, notably grain, cotton, fruits and sugar. If such a fleet is not soon built in the United States, we will once more be dependent on foreign carriers to help us out of the urgent conditions which arise periodically. In the highly competitive grain trade of the world, we cannot afford to rely on foreign ships to market our surplus wheat and other grains.

There is no branch of industry which has so many ramifications as the building of ships. It helps the miner, the steel mill employees, the farmers and the manufacturers of almost an infinite number of the various items which enter into the construction of a ship. The benefits to be derived by our workmen, skilled and otherwise, would be widespread, covering practically every state in the union.

## Eastern Yards Fairly Busy

The eastern shipyards are fairly well provided with work at the present time but all the yards on the Pacific Coast which played so important a part in the construction of the wartime fleet are now idle and hundreds of the skilled workmen which they once employed are out of work. Owing to geographical conditions, it is impossible to build any large ships on the Great Lakes at the present time but the same conditions of unemployment obtains in the great shipyards in that region. While it would be impracticable to build ships, then cut them in two and transfer them to the seaboard, these yards could be given employment in building machinery and other essential parts of freight vessels.

On the return of prosperity, which we all agree must before long take place, there will be a pressing demand for a number of up-to-date cargo vessels. It would seem, therefore, a matter of good business at the present time for the government to authorize the construction of 100 modern cargo ships at a cost of \$125,000,000. They could be built now for much less cost than when prosperous conditions return and would furnish occupations for thousands of the unemployed during this

present state of depression. The government would not stand to lose any money eventually on an investment of this kind, as there would be a ready market for such freighters when prosperous conditions return, either by sale or bare-boat charter, to shipping firms.

Incidentally, they would furnish a much needed addition to the means for national defense. While congress and a large portion of the public evidently look upon large expenditures for purely fighting ships at this time as an uneconomic procedure, no such criticism could be made of a fleet of merchant vessels such as suggested herein, as the ultimate cost to the taxpayer would be practically nil. The benefits to be derived on the other hand would be far-reaching, not alone in tending to give employment where now greatly needed but for the ultimate economic needs of the entire country. If we can spend vast amounts for emergent conditions during wartime, we should have no qualms about making appropriations of this kind for the emergent conditions of peace.

## Record Time Made in Great Lakes to Seaboard Haul

Prompted by the success of its test shipment by water from Sheboygan, Wis., to the Atlantic seaboard, the Kohler Co., Kohler, Wis., on June 24 sent its second shipment of Kohler products, about 20 carloads of enamelled and vitreous china plumbing fixtures and plumbers' brass and woodwork, over this route to New York.

The cargo was carried in steel motorship *BUCKEYE STATE*, which navigated the tortuous 1,250-mile journey through the Great Lakes, the New York barge canal and the Hudson river in the record time of 7 days 6 hours.

Motor trucks hauled the products from the factories in Kohler village to the dock in Sheboygan and from the dock in Long Island City to the Kohler company's Long Island City warehouse. Loading and unloading of the boat were by large cranes.

One of the earliest shippers in the Middle West to take advantage of the new Welland canal, the Kohler company May 4 sent a test shipment to the eastern coast to prove the commercial value of all-water transportation from Wisconsin.

Like its sister ship, the *EMPIRE STATE*, the *BUCKEYE STATE* is one of the largest boats afloat capable of navigating the barge canals. An interesting feature in the construction of both ships is the fact that the pilot house can be lowered, the two masts telescoped and the two stacks tilted to provide clearance for low bridges on the New York barge canal.



# New Matson Liner Mariposa Launched at Fore River

**T**HE S. S. MARIPOSA, first of three vessels in the \$25,000,000 building program of the Matson line, was launched July 18 at the Fore River yard of the Bethlehem Shipbuilding Corp., Quincy, Mass. Mrs. Wallace Alexander, wife of the vice president of the Matson line, christened the new vessel with a bottle of water from the harbor of Sydney, Australia. The keel of the MARIPOSA was laid on June 11, 1930, and will be delivered to the owners early in 1932. When completed, the vessel will be placed in the passenger and freight service of the line between San Francisco, Honolulu and Australia. The vessel is built to the highest classification of the American Bureau of Shipping for oceangoing vessels.

The MARIPOSA is 631 feet 6 inches long overall, 79 feet beam, 52 feet 9 inches depth to "C" deck; and approximately 20,000 gross tons. The vessel will have a speed of about 20 knots in loaded condition. Accommodations have been provided for 477 first class passengers and 229 tourist passengers. A crew of approximately 389 persons will be carried.

On the "A" deck there are ten deluxe staterooms with private baths, private verandas, lounge, foyer, library, writing room, smoking room, ballroom, etc. On the "B" deck forward is the forecastle head with electric windlass, capstan, bitts, etc. On the open deck forward of the deck house is located the first class passengers' swimming pool. Located amidships on this deck are the staterooms fitted with all modern conveniences. Some of these rooms can be grouped into suites consisting of two staterooms surrounding a salon, entrance alcove, and two complete bathrooms, with tubs, lockers, and trunk room. On the "B" deck is the second swimming pool located on an open deck for tourists' promenade. The large outside staterooms fitted with two beds, two lockers for clothing, individual toilets and bathrooms, are located on the "C" deck. Aft on this same deck are the tourists' lounge, foyer, smoking room, toilets, veranda, and the promenade outside which is partly enclosed with open

deck at after end. Forward on the "D" deck is the crew's space. Aft of the crew's space are longitudinal rows of staterooms, some fitted with private bathrooms. Aft of the after foyer on this deck are groups of tourist staterooms with lavatories. Located forward are the first class barber shops, hair dressers, manicurists, etc.

On "E" deck are located spaces for the crew including medical spaces,

## Principal Characteristics

Length overall, about.....	631' 6"
Length between perpendiculars.....	605' 0"
Beam molded.....	79' 0"
Depth molded, to "D" deck.....	44' 6"
Depth, molded, to "C" deck.....	52' 9"
Draft for scantlings and subdivision.....	28' 0"
Designed load draft, molded.....	27' 0"
Displacement at designed load draft (tons), about.....	25,000
Gross tonnage (estimated).....	20,000
General cargo capacity (cubic feet), about.....	240,000
Refrigerated cargo capacity (cubic feet), about.....	35,000
Fuel oil capacity, tons, about.....	6,300
Fresh water capacity, tons, about.....	2,800
Passenger accommodations, first class.....	477
Passenger accommodations, tourist.....	229
Total persons on board.....	1,095
Shaft horse power, normal.....	22,000
Speed service in knots.....	20

messrooms, etc. Also on this deck are the main foyer and offices for the purser, freight clerk, chief steward, telephone control, elevators, first class dining salon, foyer, galley and pantry spaces, tourists dining salon, foyer and a number of tourist outside staterooms with lavatories, barber and hair dressing shops. Spaces on the "F" deck are given over to stores forward, crew cargo between decks, mail room, linens and laundry, baggage, stores, ship's refrigerated stores, refrigerated cargo, 'tween deck cargo, etc.

On the "G" deck are cargo spaces

forward and fresh water tanks, refrigerated cargo, cargo in general and steering gear aft. Fuel oil spaces, boiler rooms, engine rooms, drinking and fresh water tanks, are located in the hold of the vessel. A deep inner bottom is subdivided into tanks for oil, fuel and fresh water.

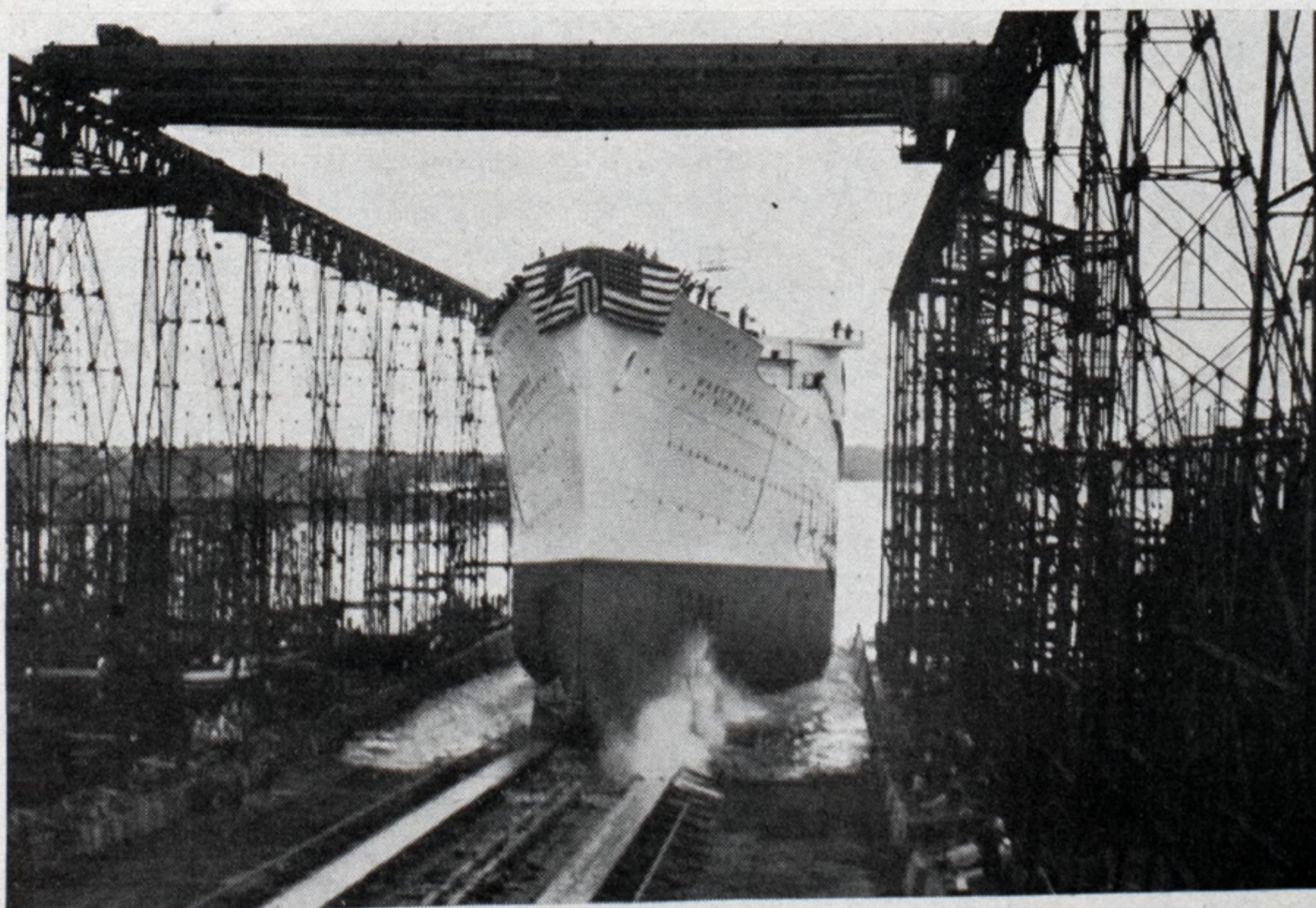
The MARIPOSA has two large stacks and is schooner rigged with two pole masts. On the fore mast are four 5-ton booms. Just aft of this mast is one 20-ton boom for handling cargo. On the main mast are two 5-ton booms. Electric winches are located adjacent to the mast for operating the booms. There are also two kingposts located aft for handling cargo with booms.

In compliance with the United States steamboat inspection service, fire screens, bulkheads and steel doors are located at required intervals. The ship is properly subdivided into watertight compartments below the bulkhead deck by twelve transverse steel bulkheads. This arrangement brings the ship well within the requirements of the International Convention for Safety of Life at Sea of 1929.

The twin screw propelling machinery will be impulse reaction type geared turbines which develop about 22,000 shaft horsepower at 125 revolutions per minute. These turbines were built by the shipbuilder. Steam will be supplied by 12 watertube boilers fitted with superheaters having a working pressure of 375 pounds per square inch and a total steam temperature of about 640 degrees Fahr. These boilers are designed for oil burning and operate under forced draft. A fuel oil capacity of 6,300 tons will give the vessel a steaming radius of about 20,000 nautical miles.

The vessel was launched at 1:45 p.m. into about 800 feet of water, the ship traveling about 140 feet beyond the end of the ways. Checking was accomplished by means of chain drag, approximately 360 tons of chain being used in six coils graduated in weight. The launching weight of the ship and

cradle was 12,200 tons. Average declivity of the ground ways was 9/16 of an inch. Width of ground ways was 5 feet. Length of cradle was 497 feet 6 inches. The initial pressure was 2.55 tons per square inch. The lower end of the berth on which the MARIPOSA was built is approximately 2 feet 6 inches below low mean low water, the water being restrained by a portable gate at the lower end of the berth. The operation of removing the gate began at approximately 6 a.m. as



*Launching of the Matson Liner Mariposa July 18, Fore River*



## Bids Asked on Three New Ocean Mail Contracts

W. Irving Glover, assistant postmaster general, announced on July 24 that bids for mail contracts for three new ocean routes would be opened at noon on Aug. 17 at his office. The awards would require successful bidders to construct at least six and possibly 14 or more new cargo vessels and have 10 to 19 or more reconditioning in American shipyards within 10 years. The project affects lines operating out of New York and other middle Atlantic ports, out of East Gulf ports and out of Seattle, with the contracts to run 10 years beginning Oct. 10.

The first route runs from New York to Rotterdam, from Baltimore by Newport News and Norfolk to Rotterdam, and from New York to Antwerp, and from Baltimore by Newport News and Norfolk to Antwerp, or from Boston or Philadelphia to Rotterdam or Antwerp. The schedule provides for not less than 72 nor more than 108 trips a year.

The second route will run from Mobile or other east Gulf ports to Havre, Liverpool, Manchester, Glasgow and Belfast, from Mobile or other east Gulf ports to Havre, London, Antwerp, Aberdeen and intermediate British ports between London and Aberdeen, and from Mobile to Rotterdam, Bremen and Hamburg. This schedule requires not less than 52 nor more than 72 trips a year.

The third route will operate from Seattle to Puerto Colombia, Colombia, and Kingston, Jamaica, on a schedule of not less than 12 nor more than 24 trips a year.

## Discuss Disposition of United States Lines

After numerous conferences held between shipping board officials, representatives of the United States lines, representatives of the International Mercantile Marine Co.-Roosevelt Steamship Co. group and other eastern ship operators a new conjecture regarding the disposition of the United States lines was brought out on July 21 when Kenneth D. Dawson, prominent Pacific coast shipping man, entered negotiations with the board.

The shipping board is making every effort to give the Chapman interests an opportunity to continue in the shipping field and favors an arrangement whereby they could acquire full ownership of the five vessels comprising the American Merchant lines, leaving the United States lines unit of the fleet to be transferred to other interests. The Chapman interests already have paid to the government \$5,000,000 on the \$16,032,000 contract price for the

11 vessels of the combined services, representing more than the amount agreed upon for acquisition of the American Merchant lines. In addition they have turned over about \$2,500,000 to the New York Shipbuilding Co., Camden, N. J., as part of their 25 per cent payment for the construction of the two 30,000-ton liners. With the present owners standing ready to forfeit this payment, shipping board members feel they should be given clear title to the American Merchant lines. This fleet, operating between New York and London, has been the only unit in the Chapman group to show profitable operation, and existing favorable prospects for continued profitable operation would give the Chapman interests a chance to recoup some of their heavy losses.

## Awarded Rescue Medal

Captain Giles C. Stedman, master of the steamship AMERICAN MERCHANT, of the American Merchant lines, a subsidiary of the United States lines, on July 8 was presented with a treasury department medal for his part in rescuing the crew of the foundering Italian steamship IGNAZIO FLORIO in a North Atlantic storm in October, 1925. The presentation was made in New York by Capt. Randolph Ridgely, Jr., United States coast guard.

## Board Defines Attitude On Operation of Lines

The shipping board on June 25 expressed its attitude in connection with the future operations of lines sold by it to American citizens, by stating that it is fully disposed to exercise its authority and discretion given under Sec. 1 of the Merchant Marine act 1920, and as reaffirmed by Sec. 1 of the Act of 1928, to develop and encourage an efficient, privately-owned American merchant marine. The broad power granted to the board will be exercised in a liberal manner, and no matter what the temporary difficulty may be in the maintenance and operation of established services, the board proposes to keep the lines in operation by the use of all the legal power within command.

It should be clearly understood that in making limited extension of obligations, the board in no way reflects on the credit position of any shipowner or operator, but is actuated solely by a desire to be helpful in these troublesome times, and the periods of extension are so arranged as to bring the situation to the attention of the board at frequent intervals, that the board may at the time be prepared to decide what further measures may be necessary to encourage and preserve the operation of all American lines.

## Adopt Report to Reduce Waterfront Fires

The National Fire Protection association at its thirty-fifth annual meeting held in Toronto, May 11-14, adopted the report of its committee on piers and wharves among twenty odd technical committee reports which were discussed and acted upon.

The report of the committee on piers and wharves was of particular interest because of the series of disastrous pier fires of the past few years and the inherent difficulties of applying to this class of property the standards of fire-resistive construction and fire protection that are employed for other classes of industrial property. The former standards of the association called for full fire-resistive or heavy timber construction, with all structural steel fireproofed. The action of the meeting, a radical departure from previous policy, was to recognize the use of bare structural steel under automatic sprinkler protection, subject to restrictions of height and area.

Discussion centered on the problem of existing piers with wooden substructure and pier deck. Fires originating in such under deck spaces, inaccessible for fire fighting operations, have been the principal cause of the large losses in pier fires. Automatic sprinklers are felt by fire protection engineers to be the solution for the problem, but objections have been made by pier authorities on account of difficulties of maintenance owing to corrosion and the possibility of theft of sprinkler heads.

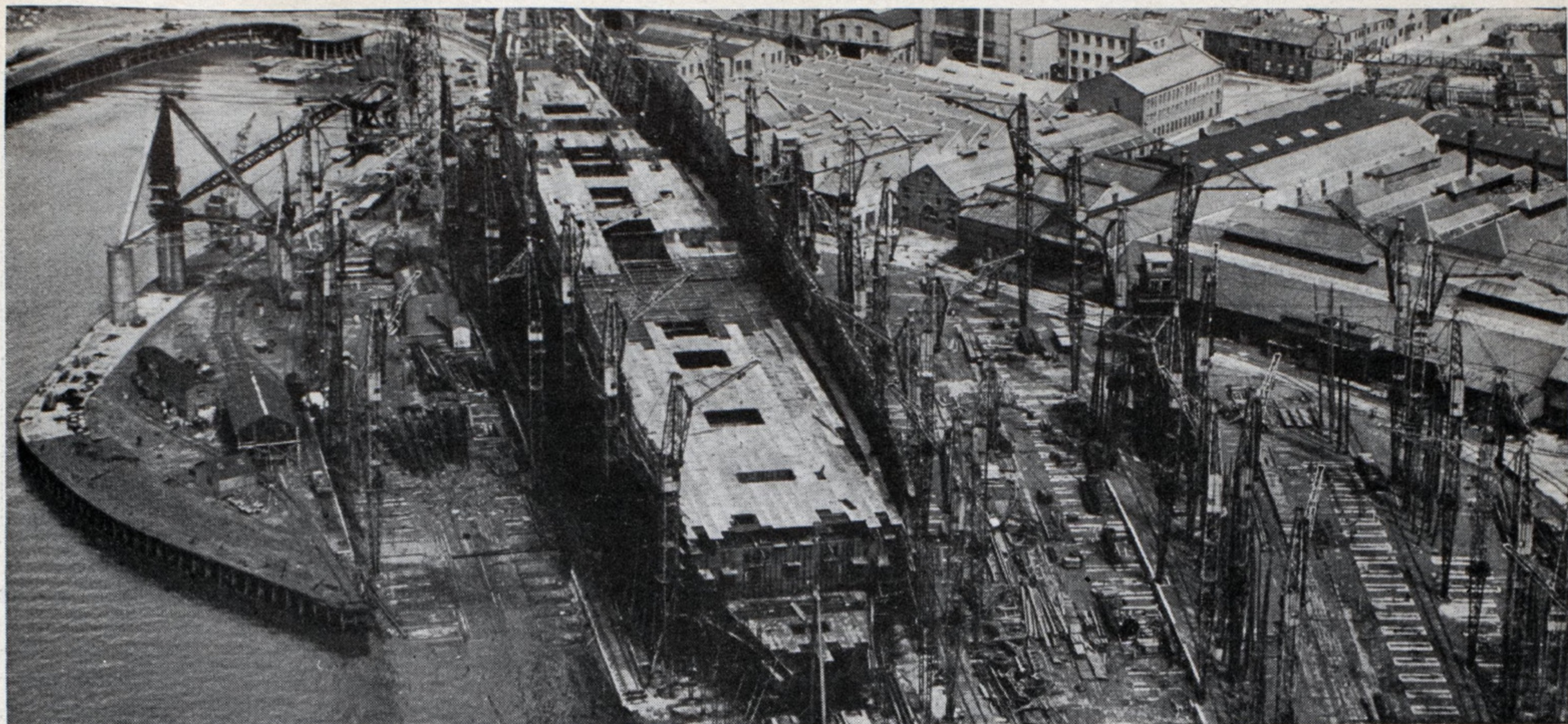
The recent decision of New Orleans to install sprinklers under her wharves and the favorable experience of Seattle, where sprinklers have been successfully maintained under one pier for 20 years, were the deciding factors in the vote of the association to recommend automatic sprinklers for the protection of the under deck space of existing piers.

In accordance with the usual N. F. P. A. policy of consulting with the interests concerned before taking action, this vote was not taken until Billings Wilson, of the Port of New York Authority, representing the American Association of Power Authorities, had agreed to the proposed wording.

## New Orleans Port Expansion

During the past 12 months, 19 steamship lines entering New Orleans either have inaugurated entirely new service, have added more vessels to old service, or have done both, the Foreign Trade bureau of the New Orleans Association of Commerce reports after a careful study of port activities. Two new barge lines have also been established during the period.





*Airplane View of John Brown & Co. Yard at Clydebanks with New Cunard Express Liner Princess Elizabeth Under Construction*

# European Shipping Still Depressed

**Over Two Hundred and Fifty Tankers Laid Up—Passenger Trades Hard Hit—Efforts to Adjust Shipyard Labor—New Vessels Launched**

By Frank C. Bowen

**F**ROM practically every aspect of European shipping and shipbuilding during the past quarter, the outlook is quite as gloomy as it was in the last report; only in one or two directions is there a slight sign of light and even then it is so slight that it can practically be disregarded. On the other hand in many sections things are worse than they have ever been and show little sign of improving in the immediate future.

The usual monthly tabulation of the June freights, taking the average of the various trades and of the whole world, has not yet been published by Lloyd's, but the May figures give a good idea of the situation with regard to bulk cargoes. Their average is certainly better by 1.29 per cent than the April figures, but at the end of the month there was a very distinct decrease and June has been marked by many fluctuations. It may be mentioned that the complete index figure for May was 73.96, compared with 70.27 for May 1930 and 89.83, for 1929, when the situation appeared to be quite bad enough to discourage most shipowners.

Perhaps the most depressing market of all at the present time is the tanker market, for owners who are lucky enough to get any charters at all are having to accept rates which are from thirty to forty per cent less than what was recently logged as the lowest on

record. Over 250 tankers of various types are laid up, and within the last few weeks quite a number of the older ones have gone to the scrappers, mostly in Italy or Japan. Many of the ships which are now idle are brand new, some of them have never yet been to sea except on their trials, and the owner who built during the recent boom without a long time charter in advance has been very heavily hit, while many of the shipyards which obtained temporary relief by building such ships on long terms are beginning to get very anxious about the safety of their money.

It is significant of the present state of the tanker market that, far from getting their goods delivered as quickly as possible as is usually the case, a large and growing proportion are making the long voyage round the Cape of Good Hope or Cape Horn rather than pay the tolls of the Suez and Panama canals.

In passing it may be mentioned that the rates charged by the former waterway, taken in conjunction with the huge dividend that it is in a position to pay, has been the subject of very bitter protest lately in which practically all European shipowners have joined. The demand that these rates should be reduced was met by a flat refusal on the part of the Suez Canal Co., but this refusal was accompanied by a reasoned statement of

the position of the shareholders over a period of years which certainly gives a rather different picture.

The western ocean passenger trade has been the worst for many years, and the period under review has been distinguished by the enormous number of scheduled sailings that have been cancelled by all the companies under an agreement among themselves. The usual tourist traffic was down by 25 per cent during the peak period and by a very much greater proportion during the months that are normally slacker, so that the ships originally scheduled could not be filled even in what is usually the very busiest period of the year. The fact that immigration into the United States and Canada has practically disappeared naturally makes the situation infinitely worse.

Nearly all the lines who can contrive it are attempting to improve matters by utilizing their passenger tonnage on yachting cruises, and all sorts of new and original ideas have been put forward to tickle the palate of the holiday maker. Many of these cruises are quite short, varying from a week to one day, with the idea of advertising the attractions of a liner tour to those to whom big-ship travelling is an absolute novelty. Few of the companies are sufficiently optimistic to think that it will make very much difference to their longer cruises



## Trend of Trade and Shipping in British Isles

	March	April	May	Five months ended May 31 1931	1930
Total entrances of cargo ships into British ports:					
Number of vessels.....	4,381	4,397	4,603	20,896	22,692
Tonnage.....	4,782,271	4,592,258	5,105,827	22,989,118	24,694,867
Tonnage from Atlantic coast of North America.....	705,070 (14.7%)	868,933 (17.9%)	1,004,456 (19.5%)	3,840,526 (16.7%)	4,484,024 (18.5%)
Total clearances from British ports:					
Number of vessels.....	4,599	4,438	4,578	22,193	25,237
Tonnage.....	4,664,370	4,654,612	5,039,271	23,269,953	27,325,444
Tonnage going to Atlantic coast of North America..	562,892 (12.1%)	767,563 (16.5%)	1,038,760 (20%)	3,326,372 (14.3%)	4,024,970 (14.7%)
Total value of goods:					
Exported.....	£39,427,954	£39,071,112	£39,642,284	£199,388,260	£303,406,487
Imported.....	£70,664,876	£70,020,381	£69,632,532	£349,353,757	£458,367,800
Exports of coal:					
Tons.....	3,612,584	3,602,504	3,515,868	17,534,573	24,491,358
Value.....	£2,890,945	£2,897,578	£2,878,610	£14,101,457	£20,655,222
Tonnage shipped for use of steamers.....	1,187,300	1,138,008	1,233,202	5,854,540	6,476,981

at the moment, things are too depressed all round for that, but they have every hope that the seed planted will prove profitable in the long run. Among the many unusual yachting cruises which have been arranged by the companies may be mentioned the week-end cruises from Hamburg to Southern Norway by the Hamburg-American liner *RELIANCE* on a basic fare of £3 a head and the third tourist yachting cruises by the P & O vessels *MONGOLIA* and *MOLDAVIA*.

But even so it is only making the best of a very bad job and all the European passenger companies are hard hit, no matter on what route they may employ their ships. Nearly all of them have been forced to ask all employees to accept a reduction of ten per cent on salaries all round, the sacrifice being made from the highest to the lowest, but even that is only a comparatively small item and economy is eagerly sought in all departments, the older and less economical ships of all the lines being laid up wherever possible. If the shipbreakers were offering a better price than they are at the moment, the worst for many years, there is no doubt that a large number of these ships would be scrapped.

In the industries connected with shipping, also, every effort is made to secure economy, but in that all efforts are naturally being checked by the disinclination of organized labor to accept any reduction in wages. It is fully recognized that the expenses of the port in Britain are far too high

and most economists would welcome some opportunity of reorganizing the rates in such a way that there would be a fairer distribution all round, for some dockers are still earning very big money indeed while an enormous number can scarcely get enough work to keep body and soul together. Any attempt to reorganize this, however, is being met by determined opposition on the part of the unions and no way out of the difficulty has yet been discovered.

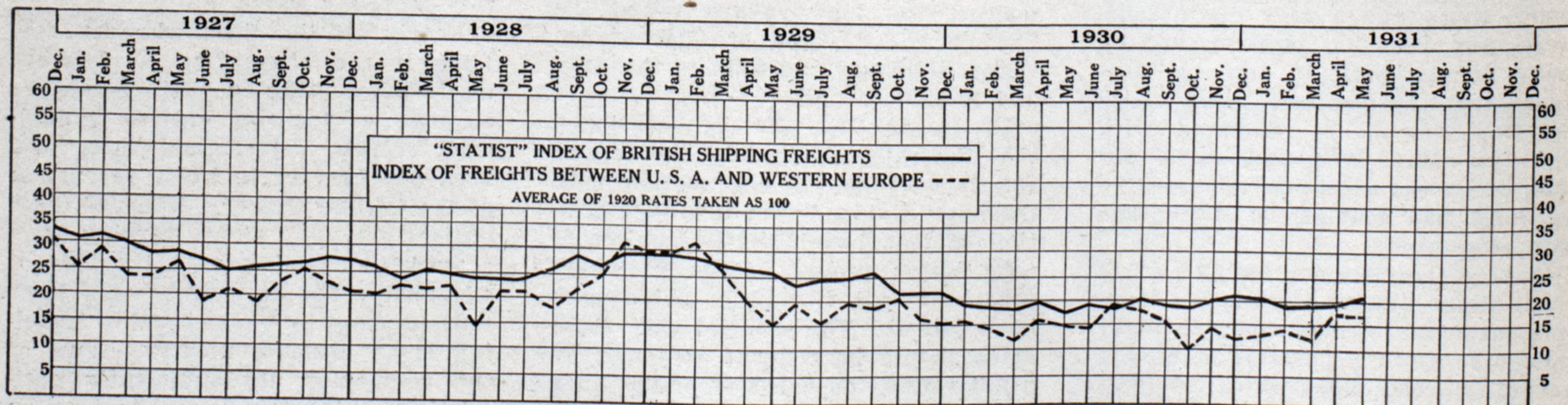
Efforts have also been made to adjust shipbuilding labor in such a way that the minimum of reductions will put the yards in a better position to get new orders and at the same time permit the owner to get his repair and survey work done at a smaller sacrifice than is possible at present. The matter is now under discussion between the employers and the men, but here again the latter are naturally anxious to avoid any reductions if possible.

The British shipbuilding industry certainly wants all the help that it can obtain, for its present position is deplorable. Things are not one whit better than they were last quarter, in fact they seem to be appreciably worse and yard after yard is temporarily closing down with no work on hand. Unfortunately the shipyards can get little or no help from the navy, for the board of admiralty is very anxious to please its political supporters in the dockyard towns and on general principles also the laying down of new men-of-war is being delayed

as long as it possibly can be. At the present time the German yards are also very hard hit, the French are complaining bitterly although they seem to have a fair amount of work, the Italians are not doing at all badly, and some of the Scandinavian establishments are very satisfactorily busy.

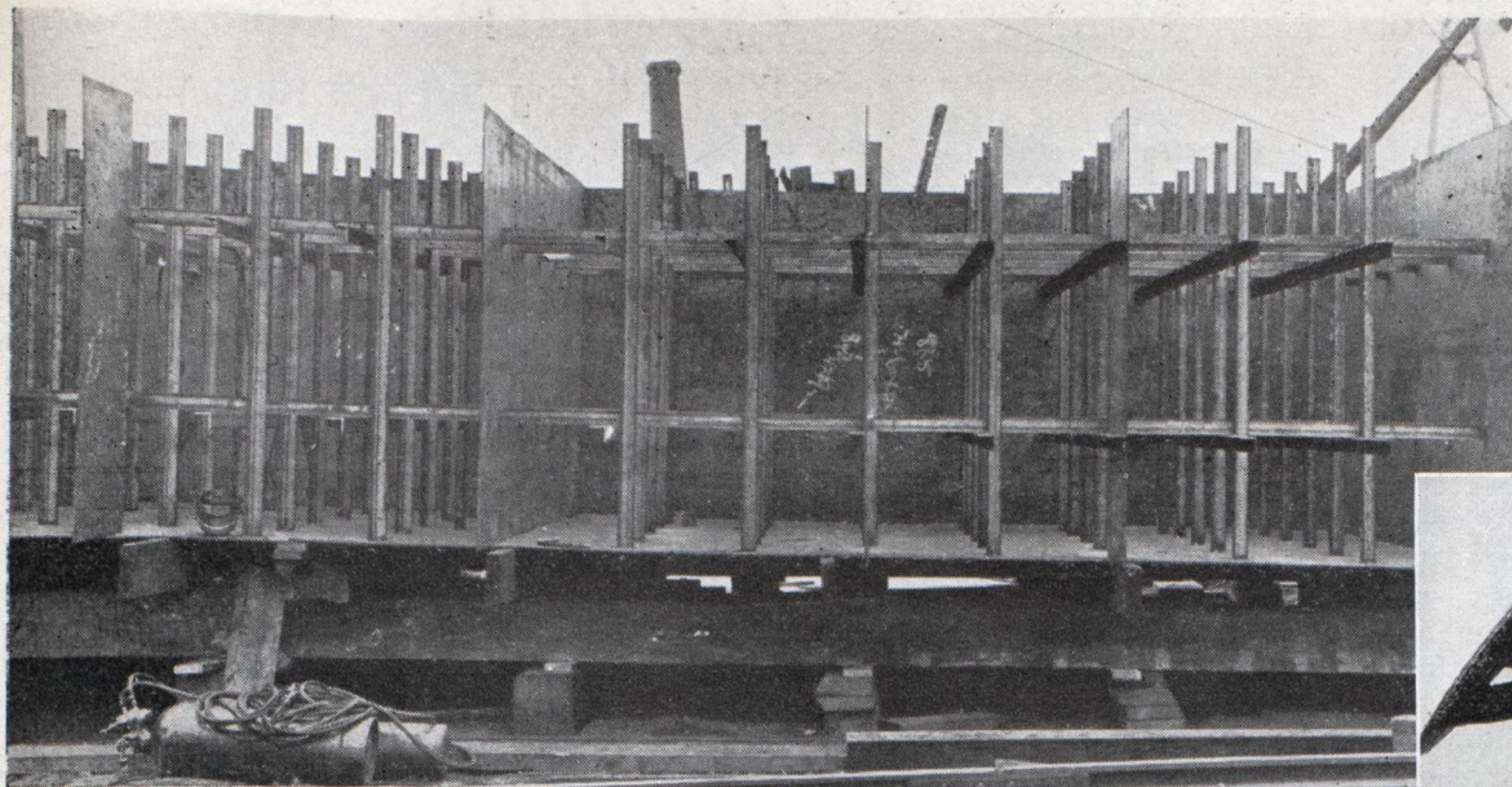
The most interesting new ships launched in the quarter are the P. & O. liners *STRATHNAVER* and *STRATHAIRD*, turbo-electric vessels which are a considerable improvement on the *VICEROY OF INDIA* and which are scheduled to be put on the Australian trade next year. The company is rightly proud of these ships, which certainly ought to prove very fine examples of modern shipbuilding, and is forsaking its usual rather sombre coloring of black hull and funnel and stone colored upperworks in favor of white hulls and bright buff funnels. It is a policy that they have adopted once or twice before when they have been particularly proud of new ships, but it has seldom lasted for very long.

Altogether, therefore, European shipping and the allied industries have not yet any reason to feel content or even to feel sure of an improvement in the future. Even the slight improvement in tramp freights is a danger, for it is not enough to make any great difference to the prosperity of the industry, but on the other hand it may persuade some optimist to bring tonnage out of the laying-up berths and so to bring prices down with a run once again.

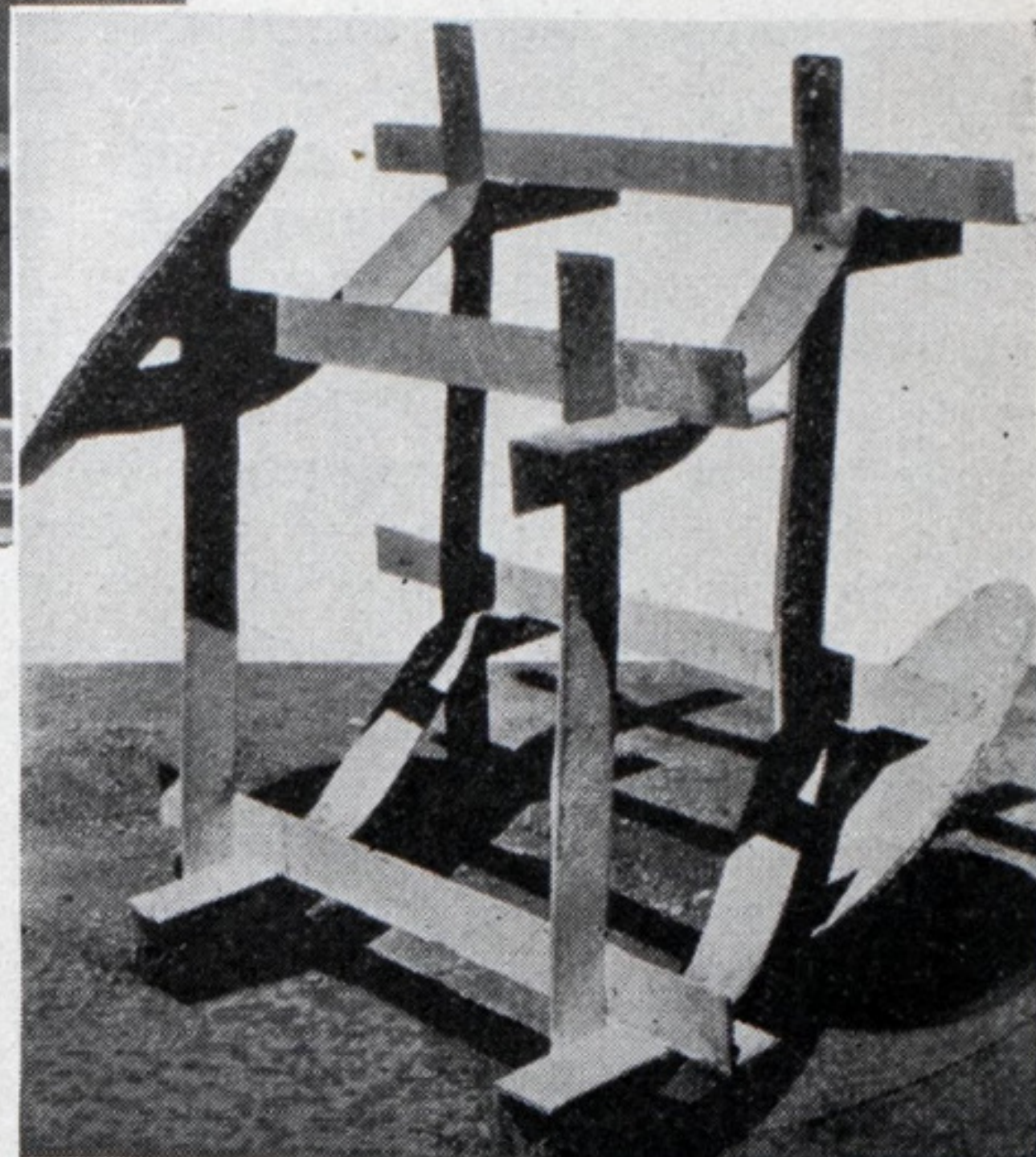


*Diagram Showing Fluctuation of Ocean Freight Rates for Four Years and Five Months*





**C**ELL type construction, shown at the left, lends itself readily to division of the hold for the transport of different liquids. Division plates merely take the place of angle members. In the specimen cell tested to destruction as shown below, all welds held without fracture



# Welded Barges of Cell Type

BY H. R. SIMONDS

**L**AUNCHING June 23 of two new steel barges of welded cell design calls attention anew to this sturdy type of angle steel framework for tankers. These two launchings were the twelfth and thirteenth of the so-called truss-weld barges to be built and are two of three barges built by the United Dry Docks Inc., New York, for the Atlantic Gulf & Pacific Co., of the same city.

The method of construction, invented some years ago by J. Kjekstad, now welding consultant with the United Dry Docks Inc., perhaps is best compared to the construction of a honeycomb, although the barge cells are rectangular instead of hexagonal as in the comb. The cell structure is built up entirely of steel angles joined by lap welds.

Some of the advantages claimed for this type of construction are, greater strength, lighter weight per cubic foot of content, easier cleaning and lower cost. The chief difference between the truss-weld construction and the use of transverse or longitudinal framing is that all members of the truss-weld framing are compression and tension members.

Mr. Kjekstad started the cell type of construction in 1927 in the building of several large rectangular gasoline tanks to withstand high pressure. These proved to be so successful that he soon applied the same method to barge construction and the record of the barges so far launched has been unusual. Although subjected to severe treatment, including collision, grounding and superstructure fire, no leak whatever has appeared in any one of them and in the case of the one which had the fire, gasoline in the hold did not take fire.

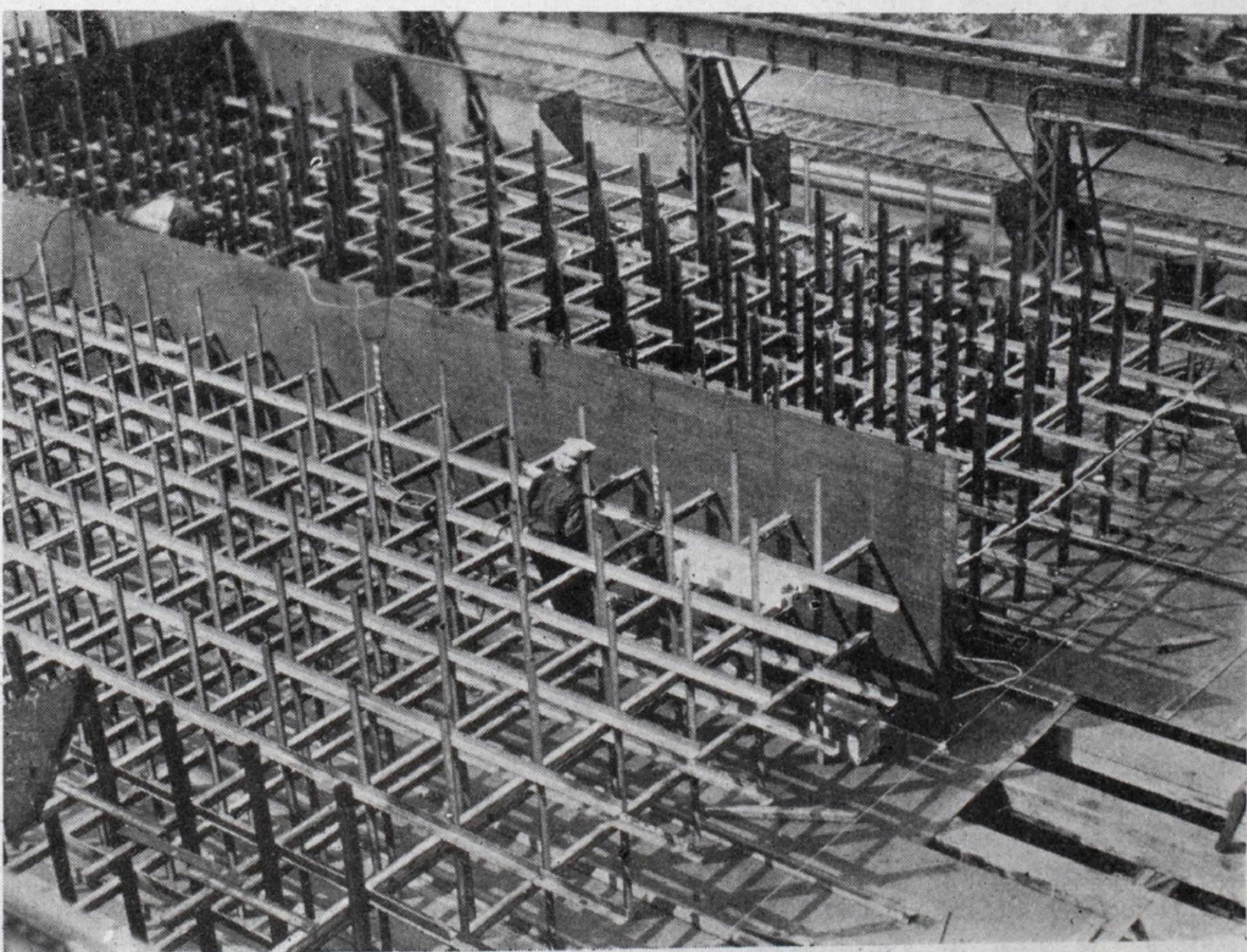
The barges while originally de-

signed for transportation of liquids are well suited for carrying heavy deck loads, because the weight of the load is transmitted directly to the bottom plates through the vertical members. The longest barge built by this method was an oil tanker 160 feet long with a capacity of 360,000 gallons. The dimensions of the individual cells and the size of the angles vary with the size and type of barge, but for the last two barges the cells were about 2 feet 6 inches square and 3 feet high, and this spacing created about 1000 cells in each barge. The angles were all  $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$  inches and the structure as

a whole was said to be able to withstand without distortion a load of 20,000 tons applied diagonally.

These last two barges are derrick barges and the other for the Atlantic Gulf & Pacific Co., which was launched May 19 was an oil barge and tender of 33,000 gallons.

One of the accompanying illustrations shows a typical truss-weld cell tested to destruction under a diagonal load. A load of 10 tons was applied to this single cell before any deflection of the truss members was noted and when the structure finally failed the welds were still intact.



*This clearly shows the cell type of construction. All joints are lap welded*



## Engineer Wins Recognition On Invention of Boiler

**J**OHNSON, who was appointed chief engineer of the Canadian Pacific Steamships effective June 1, has won great acclaim for his Johnson boiler, installed in the new liner *EM-PRESS OF BRITAIN*, which recently made the record run of four days 12 hours and 30 minutes from Cherbourg to Father Point.

The Johnson boiler consists of two large-diameter drums, placed vertically one above the other and connected by curved tubes which completely enclose the combustion space, an arrangement which exposes more tube surface to radiant heat than does any other type of marine water-tube boiler. Both during the trials on the Clyde and in the subsequent voyages between Southampton and Quebec, the Johnson boiler generated double the amount of steam per square foot of heating surface, while registering the same efficiency as a Yarrow or other standard type of boiler worked at ordinary mercantile rating. The *EM-PRESS OF BRITAIN* accordingly set new records in efficiency and economy of operation.

A native of Tyneside, Mr. Johnson was reared and educated in that district, where ships are table-talk as well as livelihood. He is 44 years old and has worked his way up from engineering apprentice. Following his journeyman days at the Wallsend works he spent four years at sea in vessels of the Blue Funnel line and became the head of its engineering department. Eight years ago he joined the Canadian Pacific Steamships and has since become a leading authority on ship and machinery construction and on technical and operating problems. In 1929 the council of the Institution of Naval Architects awarded him its gold medal for his paper on "The Propulsion of Ships by Modern Steam Machinery."

Effective July 1, James A. Kenyon was appointed assistant general passenger agent of the Hudson River Day line which operates a fleet of six passenger steamers between New York and Albany. Mr. Kenyon has been associated with the Day line for the past nine years, and prior to that was associated with the passenger departments of the Seaboard Air line and the Clyde-Mallory lines in New York.

## I. M. M. Official Resigns

Emerson E. Parvin, for the past 37 years secretary of the International Mercantile Marine Co., resigned on July 1 because of illness. He has been associated with the company or organizations absorbed by it since August, 1882, when he joined the staff of Peter Wright &

Sons, general agents for the American and Red Star lines in Philadelphia. In addition to his duties as secretary of the International Mercantile Marine Co., Mr. Parvin was secretary of the general business committee, a member of the board of trustees and secretary of the pension fund of the company, as well as secretary of the Number One Broadway Corp. and other subsidiaries.

A. P. Palmer, who has been with the International company since its organization in 1901, will succeed Mr. Parvin as secretary.

Walter H. Jones was appointed director of advertising and publicity of the International Mercantile Marine Co. on June 24 and now is in charge of advertising and publicity for the White Star, Red Star, Atlantic Transport and Panama Pacific lines.

The Dampney Company of America, Hyde Park, Mass., recently employed William Richards, who will



John Johnson

be attached to their marine department in New York. Mr. Richards was formerly a chief engineer of the United States and Australasia lines, also formerly attached to the fuel conservation section of the United States shipping board and recently assistant marine superintendent of Lykes Brothers—Ripley Steamship Co. at Galveston, Texas.

Gaillard F. Ravenel, for the past five years manager of the International Mercantile Marine Co. in Boston, and formerly assistant to the president in New York, has been appointed vice president and general manager of the Roosevelt Steamship Co. at Baltimore. Mr. Ravenel is a native of South Carolina and has been identified with the steamship business for many years.

## Becomes Executive Head

L. A. Paddock was recently elected president of the American Bridge Co. to succeed Joshua A. Hatfield, whose death occurred on July 4. Mr. Paddock had been vice-president of the company since April, 1927, located at Pittsburgh. He will continue in that city where general offices and headquarters of the company now will be located.

Arthur L. Davis has been elected vice-president in charge of sales.

## Fleet Heads Retire After Long Service Records

W. W. Watterson, superintendent of construction for the Pittsburgh Steamship Co., Cleveland, will retire on Aug. 1. He has been connected with the company for the past 28 years and supervised the building of all of the 40 600-foot steamers for the Pittsburgh fleet. Prior to his joining the company he was identified with several shipyards and for many years has been considered an expert in the construction of ships, especially those of the Great Lakes type. He has been connected with Great Lakes shipping for over 40 years.

Captain W. F. Meister, who has been ashore since 1924 and has acted as assistant to Mr. Watterson, will succeed the latter. Captain Meister began service in the Pittsburgh fleet at the age of 14 and has been with the company for nearly 29 years. Among the steamers which he commanded were the small *WILLIAM G. MATHERS*, the *JOHN ERICSSON* and the *R. W. BUNSEN*. He also took out various of the 600-footers, when needed.

W. J. Harsant, fleet engineer, who has been with the company since it was organized and has been connected with Great Lakes shipping for over 40 years, will also retire on Aug. 1. He will be succeeded by J. F. Wood, another long-time employe of the company, who began service with the Lake Superior Iron Co. in 1897 as assistant engineer on the steamer *JOLIET*. This was prior to the absorption of the fleet by the United States Steel Corp. He acted as an inspector during the construction of the first four 600-footers built at Chicago and in the fall of 1906 brought out one of them, the steamer *P. A. B. WIDENER*.

## Engineer Well Known In Marine Field Dies

Walter E. Pierce, 46, well known in marine circles, died at the Knickerbocker hospital, New York, on July 6. He was formerly superintendent of the Arbuckle Sugar Refining fleet, was connected with the McAllister Steamship Co., acted as assistant superintendent engineer for the Black Diamond Steamship Co. and as superintendent engineer for the Roosevelt Steamship Co. At the time of his death Mr. Pierce was superintendent of the Columbia Broadcasting building, New York, and previous to that was superintendent of the New York Harbor Dry Dock Co. at Rosebank, S. I., N. Y. He had also spent a number of years at sea as a marine engineer.

He is survived by his wife and one son.



# United States Now Second in World Shipbuilding Volume

THE volume of the world's merchant shipbuilding is now lower than at any time since pre-war days, says a statement just issued by Lloyd's covering returns from all maritime countries except Russia during the quarter ended June 30 last. No Russian returns are available.

As compared with the previous quarter, a decline of about 175,000 gross tons is shown, and the present world total is almost 1,340,000 tons below that of the period just before the war.

The contrast in conditions in the principal groups of shipbuilding countries is shown in the following table, the figures representing construction under way in the past two quarters:

	June 30, '31	Mar. 31, '31
Great Britain and Ireland .....	555,603	693,814
United States ....	301,489	231,003
Other countries..	968,895	1,075,049
World total .....	1,825,987	1,999,866

As a result of the shrinkage in ship construction in Great Britain and Ireland, the United States is now building only about 250,000 gross tons less than those countries. In the previous quarter the gap was more than 460,000 tons; and a year ago it was in excess of 1,150,000 tons. Just before the war, Great Britain and Ireland led the United States by about 1,575,000 tons. Less than a third of the world's merchant onnage is now being built in Great Britain and Ireland, whereas, hardly more than a year ago they were building more tonnage than all the other maritime nations combined.

The decrease in world shipbuilding is also strikingly shown by the returns giving the new work begun and the tonnage launched during the quarter ending June 30, last. The comparison between launchings and new work in the past two quarters is shown in the following tables of gross tonnage:

	June 30, '31	Mar. 31, '31
New York—		
Great Britain and Ireland .....	22,105	32,085
Other countries..	208,754	203,482
World total .....	230,859	235,567
Launchings—		
Great Britain and Ireland .....	169,202	144,219
Other countries..	297,268	249,759
World total .....	466,470	393,978

General declines were shown during the last quarter in the construction of steam and motor tankers of 1000 gross tons each and upwards. For all countries combined there was a decrease of about 135,000 tons from the total for the quarter ending March 31 last. For Great Britain and Ireland the decline was 56,000

tons, and for the United States 16,500 tons. Not much tanker tonnage is now being built in American shipyards. The following table of gross tonnage shows the contrast in tanker construction during the past two quarters:

	June 30, '31	Mar. 31, '31
Great Britain and Ireland .....	243,315	299,513
Sweden .....	85,100	108,600
Germany .....	82,090	104,950
Holland .....	69,800	71,800
United States ....	10,500	27,000
Other countries..	137,005	149,740
World total .....	627,810	761,603

Motor tankers represent 526,699 gross tons of the present world total of tanker building, as compared with 663,122 tons in the March quarter.

At the beginning of this year, about 350,000 tons more of motorships than of all other types were being constructed. The contrast between the two groups in the last two quarters is given in the following table of tonnage:

	June 30, '31	Mar. 31, '31
Motor Vessels.....	870,698	1,047,146
Other types .....	955,289	952,720
World total .....	1,825,987	1,999,866

Great Britain and Ireland shows the greatest decrease in motorship construction, with about 80,000 gross tons less building there than in the previous quarter, while for all other countries combined the decline in the same period has been only about 95,000 tons. And while only thirty-eight per cent of current construction in Great Britain and Ireland is motorships, for the other shipbuilding nations combined, the figure is fifty-two per cent. This latter figure, however, compares with sixty-three per cent at the beginning of this year, at which time forty-eight per cent of British and Irish construction was also of motorized types. The comparison of types of ships building in these groups of countries at present is shown in the following tonnage table:

	Great Britain and Ireland	Other countries
Motor Vessels ....	213,394	657,304
Other types .....	342,209	613,080
Total .....	555,603	1,270,384

The general character of the decline in motorship building is shown by the returns from the countries that have been most active in this type of construction. The comparison between countries in the last two quarters is given in the accompanying tonnage table:

	June 30, '31	Mar. 31, '31
Great Britain and Ireland .....	213,394	295,042
Germany .....	118,395	120,161
Holland .....	102,984	115,065
Sweden .....	101,100	133,450
Denmark .....	87,115	108,666
United States ....	15,125	34,885

While the aggregate horsepower of oil-engines and reciprocating steam engines being built or installed throughout the world during the quarter just ended showed a decrease, the figures for steam turbines made an advance.

For oil engines the total indicated horsepower was 796,837 at the end of the June quarter, as against 873,680 at the close of the March quarter. For Great Britain and Ireland the drop was from 165,774 indicated horsepower to 134,367. Italy's figure fell from 118,000 to 112,000, and that of the United States from 19,760 to 13,805. Germany, however, in the same period, showed an advance from 113,370 to 168,446.

For reciprocating steam engines, the aggregate indicated horsepower for all countries declined from 200,865 at the end of the March quarter to 145,065 at the end of the June quarter. In the same period the total for Great Britain and Ireland dropped from 109,385 to 80,340. For the United States the total decreased from 7550 to 4800.

The total shaft horsepower of steam turbines for all countries combined advanced from 987,260 at the end of March to 1,036,790 at the end of June. The United States showed an advance from 284,700 to 334,200, and Italy's figure increased from 208,000 to 287,000. France gained very slightly, her total moving from 106,000 to 106,800. For Great Britain and Ireland, however, there was a decline from 379,760 to 345,090.

The comparison of the various countries in tonnage under way in the last two quarters is shown in the following tonnage table:

	June 30, '31	Mar. 31, '31
Great Britain and Ireland .....	555,603	693,814
United States ....	301,489	231,003
France .....	211,940	232,115
Italy .....	170,658	174,452
Germany .....	130,651	135,951
Sweden .....	110,355	141,305
Holland .....	108,299	120,630
Denmark .....	90,655	114,711
Spain .....	60,700	47,874
Japan .....	46,269	57,200

Of large ships, each of 20,000 gross tons or over, eighteen are now being built, as compared with fourteen at the end of March. United States shipbuilders lead, with seven of these vessels under way. Five are being built in Great Britain and Ireland, and France and Italy are each constructing three.

## Patrol Boat Bearings

Seven 165-foot United States coast guard patrol boats being built by the Bath Iron Works Bath, Maine, are being equipped with Cutless rubber bearings manufactured by the B. F. Goodrich Rubber Co., Akron, O. The boats are twin screw and each boat will have four rubber bearings, two for 7½-inch shafts and two for 5-inch shafts.



# Latest Data on New Marine Work

Information on New Ships Ordered—Building and Repair Contracts Let—Shipping Board Loans Made, Authorized or Pending

**A**CCORDING to a report of the department of commerce, on June 1 American shipyards were building or under contract to build for private shipowners 121 vessels aggregating 369,685 gross tons, compared with 183 vessels aggregating 396,886 gross tons on May 1. Following is a summary showing the number and gross tonnage of steel vessels under construction or contract for private shipowners on June 1.

Three passenger and cargo vessels of 17,500 gross tons each were under construction by the Bethlehem Shipbuilding Corp. for the Oceanic Steamship Co. Three passenger and cargo vessels of 7200 gross tons each were also under order with the same yard for the United States Mail Steamship Co. The Bethlehem company also had under construction one tanker of 1534 gross tons for the Standard Transportation Co. The Federal Shipbuilding Co. was beginning a program of construction of four passenger and cargo vessels of 11,000 gross tons each for the Grace line. The Newport News Shipbuilding & Dry Dock Co. was building two 21,900 gross ton passenger and cargo vessels for the Dollar Steamship Co.; was under contract to build three 7500 gross ton passenger and cargo vessels for the United Mail Steamship Co.; and was building two 5700 gross ton passenger and cargo vessels for the Eastern Steamship lines. The New York Shipbuilding Co. was under contract to build two passenger and cargo vessels of 30,000 gross tons each for the United Line Inc. The Sun Shipbuilding & Dry Dock Co. was building four tankers of 9000 gross tons each for the Motor Tankship Corp. and one passenger and cargo vessel for 8272 gross tons for the American South African line. This makes a total of 25 steel vessels, aggregating 301,606 gross tons under construction or contract by American shipyards for private owners.

## Begin Work on New Fireboat

Fire Commissioner John J. Doran drove the first rivet in the keel of New York City's fire boat now under construction at the Tebo Yacht Basin in Brooklyn and officially set under way the building of a craft which it is said will have greater capacity than any marine fighter in this country.

The 130-foot vessel will be de-

livered at a cost of \$582,500. It will have a beam of 26 feet, a draft of 7½ feet and will be equipped with five Sterling engines developing a total of 2740 horsepower. The motors will operate on two electric units generating 1163 horsepower which will drive the craft at 18 miles per hour.

Designed by Henry J. Gielow Inc. and classified under the American Bureau of Shipping, this new craft will be capable of throwing 16,000 gallons of water per minute. It will be self protected by a system of sprays. Fuel tanks will be housed within encasements which will be guarded by carbon dioxide fire prevention equipment. It is expected that the vessel will be placed in service in the fall.

## New Cunard Super Liner Will Be World's Largest

Additional details concerning the new \$30,000,000 giant Cunarder, now building on the Clyde, reveal that the old British company is leaving nothing undone to recapture the Atlantic Blue Ribbon it lost to Germany after more than 20 years. Not only is the vessel designed for record-breaking speed but she will be the biggest liner in the world.

The new vessel will be 1018 feet long, with a beam of 115 feet and 73,000 gross tons. High pressure, superheat turbines, generating 20,000 horsepower will, it is reported, drive her at a speed of between 32 and 35 knots.

Not only has the Cunard line designed the vessel to be the biggest and swiftest afloat, but no expense is being spared in making her the most luxurious and comfortable vessel possible. Approximately \$2,500,000 will be spent on her interior decorations and \$1,000,000 for a gyro-stabilizer weighing 300 tons.

This vessel is the first of two sister ships. It is expected that the keel of the second will be laid some time next year. Two vessels of this speed will make possible weekly express sailings from New York, Southampton and Cherbourg. They will actually do the work of the three big ships which are maintaining the company's weekly express sailings at the present time.

The new Cunarder will accommodate 5000 passengers. The biggest liners now in service carry a little more

than 2000 passengers on the average.

Externally the outstanding points of the new Cunarder will be found in her bows, funnels and decks. The bows will be of the bulbous type, designed to give greater speed and to reduce rolling. The three funnels will be of graduating heights, the first the tallest, the second several yards lower and the third still lower. This plan was evolved after many tests to make sure that the smoke will pass over the decks in the worst winds.

Ten miles of carpet will be used for deck coverings. She will have 10,000 electric fittings and 30,000 tons of steel will be used in her construction. Her power station will produce enough electric current to provide light for a city of 100,000 people.

The catering department will boast 200,000 pieces of crockery. Tableware, including knives, forks, spoons, etc., will total 100,000 pieces. The vessel's stern frame, already made, weighs 100 tons and is the world's biggest casting.

The new Cunarder will be launched early next year and will sail from Southampton on her maiden voyage to New York in October of 1933.

## Hold Successful Trials

The electrically-propelled lighthouse tender, LINDEN, for use by the United States government, bureau of lighthouses, in buoy and supply work in Chesapeake Bay and its tributaries successfully completed its trials on July 20, and will soon go into service.

The boat is of steel construction, approximately 120 feet long, with 25-foot beam, and was built by the Merrill Stevens Drydock Co. of Jacksonville, Fla. The power plant consists of two Winton diesel engines driving two 100-kilowatt, 250-volt, 400-revolutions per minute electric generators which supply electricity for all purposes, including propulsion, lighting and the operation of auxiliaries. The LINDEN is driven by a single screw propeller direct connected to a 240 horsepower driving motor operating on 500 volts at 350 revolutions per minute. This is of double unit construction. Complete electric equipment was furnished by the General Electric Co.

The control is of the armature control type, with a station in the engine room.



## Private Yards Can Bid for Work on New Destroyers

Private shipbuilders are to have an opportunity to bid for some of the 10 new destroyers, the first vessels of this type constructed by the United States since the World war, which the navy will start building during the next few months, the department of the navy announced July 14.

The design decided upon for the first post-war destroyers calls for ships of London treaty limits capable of making 35 knots. These destroyers will be considerably larger than the World war type.

Details of the armament of the new destroyers are being held confidential at present. The series built in 1918 and 1919 carry four batteries of four-inch guns, 12 torpedo tubes, and a three-inch anti-aircraft battery each.

Construction will be started during the current fiscal year, with the appropriation of \$10,000,000 made available at the last session of congress for the building of 10 destroyers and one destroyer leader. The department has abandoned its intention of constructing the leader at this time, and will build instead 11 destroyers of the same type. It is considered one ship will be assigned to Brooklyn, N. Y., navy yard.

The estimated cost of these ships, as outlined by officers of the navy at the last session of congress, is \$4,700,000. The World war series cost approximately \$2,000,000 each.

## Plan Double Launching

The United Fruit Co. is planning a double launching ceremony on Aug. 15 at the yards of the Newport News Shipping & Dry Dock Company, when the TALAMANCA and SEGOVIA, the first two in a \$30,000,000 ship-building program of six sisterships, slip down the ways.

It is planned to launch the last four in the following order: The ANTIGUA, building at the Bethlehem yards at Quincy, Mass., to be launched Oct. 25; the QUIRIGUA from the same yard Nov. 14; the CHIRIQUAL, building

at Newport News, Nov. 30, and the VERIGUA, building at Quincy, Mass., Dec. 12.

The approximate cost of each liner is \$5,000,000 and it is said they will be the finest ships of their type. They are 11,000 tons displacement, with a length of 447 feet, a beam of 60 feet and a depth of 34.8 feet. They will maintain a speed of 18 knots and will carry 120 passengers each.

It is understood that three of the new liners are intended for operation in the United Fruit Co.'s New York service to the West Indies and Central and South America, while the other three will be assigned to the company's Pacific Coast-South American-West Indies service.

The ships will be driven by turbo-electric power, with two propulsion motors and two main turbo-generators, one of each for the twin shafts. Engine room auxiliaries, galley equipment and the refrigerating system will be driven electrically and the steering gear will be hydro-electric.

## Powerful Diesel Towboat for River Operation

The HERBERT HOOVER, which is said to be the most powerful diesel towboat in the world, was launched from the yard of the Dubuque Boat and Boiler Co., Dubuque, Iowa., July 2. This boat was built for the Inland Waterways Corp. and is fitted with two 1100 brake horsepower McIntosh & Seymour single action, air injection diesel engines. These engines each drive a propeller working in a partial tunnel. The vessel was designed by The Dravo Contracting Co.

The HERBERT HOOVER is 215 feet molded length, 43 feet 6 inches beam, 10 feet depth, and 6 feet draft. The hull is of steel with bottom plating 5/16-inch in thickness with keel plate 3/8-inch thick. Maneuvering will be done by direct control of the engines in speed and direction of rotation. In addition to the main engines there are two 75-kilowatt generating sets driven by Atlas Imperial diesel engines.

The vessel is to be used between St. Louis and Memphis and will have a towing capacity upstream of 10,000 to 12,000 tons in river barges.

## Bids on Engineers Equipment Called for and Received

Bids will be opened Aug. 4 at the office of the chief of engineers United States army, Washington, D. C. for a 24-inch self propelled stern wheel pipe line dredge. The vessel will be 224 feet 1 1/2 inches long overall, 196 feet between perpendiculars, 44 feet 4 inches molded beam, 7 feet molded depth at side, 7 feet 6 inches at center. Draft is not to exceed 4 feet 1 inch in service condition with 500 gallons of fuel oil, 800 gallons of potable water, etc. on board. The deck house will be 162 feet long, 31 feet 8 inches wide and will be of steel, weather tight.

The propelling engines will be two horizontal, tandem compound poppet valve condensing engines, designed for a pressure of 300 pounds per square inch gage, 100 degrees superheat and a condenser vacuum of 26 inches.

The paddle wheel will be of the split wheel type 18 feet diameter over buckets, 26 feet 6 inches overall length.

The United States Engineer's office, Wilmington, N. C. has received five bids for the construction of one steel barge approximately 80 feet long, 26 feet wide and 6 feet deep. Bids for this vessel were opened June 23, and were as follows:

Bidder	Price ad- Days justed	Price
Treadwell Construc- tion Co., Midland, Pa. ....	70 \$12,770	\$9,870
United Dry Docks Inc., New York City .....	60 16,700	14,300
Charleston Dry Dock & Machine Co., Charleston, S. C... ..	12 11,500	11,500
Warwick Machine Co., Newport News, Va. ....	110 16,480	11,580
Chicago Bridge & Iron Works, Birm- ingham, Ala. ....	90 12,554	8,644

Specifications call for a barge suitable for transporting either fuel oil or coal and having at least four oil-tight compartments formed by one centerline bulkhead and three transverse bulkheads.

## Bunker Prices

### At New York

	Coal alongside per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
July 18, 1931. 4.75@5.00		.85	3.72 1/2
June 18. .... 4.85@5.25		.90	3.84 1/2
May 18. .... 4.85@5.25		1.00	4.08
April 18. .... 4.85@5.25		1.10	4.32
Mar. 18. .... 4.85@5.25		1.10	4.55 1/2
Feb. 18. .... 4.85@5.25		1.10	4.55 1/2
Jan. 18. .... 4.85@5.25		1.10	4.55 1/2
Dec. 18. .... 4.85@5.25		1.10	4.55 1/2
Nov. 18. .... 4.85@5.25		1.10	4.92
Oct. 18. .... 4.85@5.25		1.10	4.92
Sept. 18, 1930. 4.85@5.25		1.10	4.92

### At Philadelphia

	Coal trim in bunk per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
July 18, 1931. 4.75@5.00		.85	3.70
June 18. .... 4.85@5.25		.90	3.80
May 18. .... 4.85@5.25		1.00	4.4
Apr'l 18. .... 4.85@5.25		1.00	4.60
Mar. 18. .... 4.85@5.25		1.00	4.88
Feb. 18. .... 4.85@5.25		1.00	4.88
Jan. 18. .... 4.85@5.25		.85	4.88
Dec. 18. .... 4.85@5.25		.95	4.88
Nov. 18. .... 4.85@5.25		1.00	4.88
Oct. 18. .... 4.85@5.25		1.05	4.88
Sept. 18, 1930. 4.85@5.25		1.05	4.88

### Other Ports

Boston, coal, per ton..	\$7.31
Boston, oil, f. a. s., per barrel.....	0.99
Hampton Roads, coal, per ton, f.o.b., piers \$4.35 to 4.50	
June 9—Cardiff, coal, per ton.....	13s 6d
London, coal, per ton... —s —d	
Antwerp, coal, per ton..	18s 6d
Antwerp, Fuel oil, per ton.	67s 6d
Antwerp, Diesel oil, per ton.....	82s 6d
British ports, Fuel oil..	67s 6d
British ports, Diesel oil.	82s 6d



# Late Decisions in Maritime Law

## Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review

By Harry Bowne Skillman

Attorney at Law

**T**HERE is nothing in common between the national prohibition act and the navigation laws, and a vessel that engages in an unlawful trade contrary to the terms of her license need not necessarily be proceeded against under the national prohibition act because of the fact that the contraband cargo she carries is liquor. She may have violated both the national prohibition act and the navigation act at the same time. Being licensed to engage in fishing only and being found engaged in another and an illegal trade, she became subject to forfeiture for violation of the terms of her license under section 4377 of the revised Statutes, it was said in the case of *PILOT*, 43 F. (2d) 491. Innocence of the owner is not a defense to forfeitures incurred under the customs and navigation laws, the court proceeded, and there is no disagreement among the courts on this proposition, the law being definitely settled.

\* \* \*

**B**OTH steamer and tow have a right to navigate the river, declared the court in the case of *J. C. HART*, 43 F. (2d) 566; it being the duty of the tow to meet the ordinary risks of navigation and of the steamer not to injure a tow so constituted by her swells. It cannot be expected that vessels will so manage their work, as to receive extraordinary swells without harm. The vessel making such swells is responsible for their effects upon innocent vessels.

\* \* \*

**T**HE duty exists to avoid making up a tow in such a manner as to invite possible injury from ordinary and reasonably to be expected swells in a busy place like New York harbor. In other words, said the court in the case of *FAVORTA*, 43 F. (2d) 569, barges towed in New York harbor, with its large and small steamers, its ferryboats, and general traffic, must expect to meet swells and other ordinary and reasonable disturbance of the water, and no liability exists for damage done from such causes, unless, by a fair preponderance of evidence, the damage is shown to have been proximately caused by negligence of those operating the vessel.

\* \* \*

**T**HE terms of a bill of lading are to be construed strictly against the carrier, and this rule of strict interpretation applies with equal force to any language purporting to grant a liberty to deviate from the customary course.—*PELOTAS*, 43 F. (2d) 571.

\* \* \*

**E**VERY bill of lading in default of special provision contains an implied warranty that the voyage will be prosecuted without unnecessary de-

lay of deviation, and that if the vessel does unjustifiedly deviate from her direct course the carrier from that moment on becomes the insurer of the goods and it becomes immaterial how damages are occasioned.—*PELOTAS*, 43 F. (2d) 571.

\* \* \*

**I**F A clean bill of lading is given for cargo known to be in poor condition, whether it is negotiable or not is immaterial as regards the shipowner's liability. "For what difference can it make," asked the court in the case of *CARSO*, 43 F. (2d) 736, "whether the steamship owner issues a document which it may reasonably expect will be acted on to his detriment by a particular man or by many men—by a man whose name it knows or by men whose names it knows not?" The real question, the court said, is whether the consignee of a straight bill of lading or the indorsee of a negotiable bill of lading knows, when he pays his money or pledges his credit, that the representation as to the condition of the goods by the shipowner is false. If he does not know of the misrepresentation, the shipowner must stand by his statement of condition. When a shipowner in a foreign port issues to a shipper a bill of lading in which the condition of the goods is falsely described there always arises a suspicion of connivance, but whether there be connivance or not does not matter. A bill of lading is a document of dignity, and the court should do everything in their power to preserve its integrity in international trade for there, especially, confidence is of the essence.

\* \* \*

**U**NSEAWORTHINESS does not preclude a shipowner from invoking a clause in the bill of lading limiting time for prosecution of claim.—*Lagerloef Trading Co. v. United States*, 43 F. (2d) 871.

\* \* \*

**A** CONTRACT of sale of a steamer, referring to the sale as a "c. i. f." sales, means a sale free of cost, insurance, and freight, that is, that the price fixed covered not only the cost of the cargo, but also insurance and freight.—*Krowler v. Delaware River Steel Co.*, 43 F. (2d) 476.

\* \* \*

**I**N THE case of *United States v. Delaware Bay and River Pilots' association*, 44 F. (2d) 1, it appeared that the deck officer of a pilot boat left the pilot house with only a wheelsman and an apprentice on the lookout deck, and went to the lower deck into the lighted cabin to arouse a pilot to board an incoming vessel, at a time when the lights of an ap-

proaching vessel were in view. Being the officer in charge of the deck, said the court, the duty rested on such officer, as the lights of the approaching vessel were in view, not only not to leave the pilot house, but to watch his compass, noticing the bearing of the approaching vessel and keeping under constant observance the lights of that vessel.

\* \* \*

**S**ECTION 4377 of the revised statutes of the United States, providing for the forfeiture of a vessel which engages in trade other than that for which she was licensed, was under consideration in the case of *CHICUITA*, 44 F. (2d) 302, and the court held that it would certainly be giving a liberal construction to such section to hold that carrying a few lobsters on a pleasure yacht, for the use of the crew, on a single occasion, without hire, constitutes engaging in trade within the meaning of the section.

\* \* \*

**I**N HOLDING a steamship at fault for failure to stop and give a tug a chance to get its tow around the river bend at Hell Gate in the East river, the court, in the case of *CERES*, 44 F. (2d) 377, observed: "The navigators of both vessels were most experienced and have spent most of their water life in passing back and forth through Hell Gate. If any one is able to foresee its eccentricities, it is such men as they were. But it must be remembered that familiarity often breeds disregard of precautions which would be observed by those who are less experienced."

\* \* \*

**T**HE obligation imposed by the starboard hand rule upon the privileged vessel in thus stated: The preferred steamer will not be held in fault for maintaining her course and speed, so long as it is possible for the other to avoid her by porting; at least in the absence of some distinct indication that she is about to fail in her duty. If the master of the preferred steamer were at liberty to speculate upon the possibility, or even the probability, of the approaching steamer failing to do her duty and keep out of his way, the certainty that the former will hold his course, upon which the latter has a right to rely, and which it is the very object of the rule to insure, would give place to doubts on the part of the master of the obligated steamer as to whether he would do so or not, and produce a timidity and feebleness of action on the part of both, which would bring about more collisions than it would prevent.—*CITY OF CAMDEN*, 44 F. (2d) 711.



# Marine Business Statistics Condensed

## Record of Traffic at Principal American Ports for Past Year

### New York

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	541	2,747,134	526	2,596,749
May	478	2,434,601	511	2,542,351
April	496	2,538,201	527	2,656,992
March	494	2,396,654	489	2,323,422
February	439	2,127,771	484	2,261,468
January	486	2,417,338	542	2,533,711
December	539	2,497,454	521	2,454,917
November	485	2,194,780	470	2,144,883
October	530	2,546,629	548	2,636,414
September, 1930	591	2,877,309	556	2,693,493

### Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)  
(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	75	218,611	50	127,906
May	82	235,108	62	170,497
April	68	189,113	51	136,433
March	65	198,848	46	116,786
February	69	200,212	53	163,134
January	70	227,146	49	158,570
December	80	206,778	55	144,471
November	87	226,006	46	122,107
October	85	231,460	53	144,530
September, 1930	87	232,781	52	147,365

### Boston

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	130	347,787	97	264,467
May	108	311,171	91	293,146
April	107	292,403	89	233,756
March	97	279,797	66	243,377
February	76	259,402	57	190,598
January	76	245,382	49	195,091
December	91	287,347	50	174,971
November	77	248,220	61	232,826
October, 1930	96	321,092	65	208,695

### Portland, Me.

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	17	28,216	17	26,397
May	12	20,821	11	22,573
April	11	30,000	10	25,765
March	6	20,081	7	20,122
February	18	48,722	15	45,664
January	14	40,247	15	46,602
December	23	55,605	23	60,126
November	21	46,182	20	40,916
October	17	41,667	20	45,989
September, 1930	32	53,423	28	49,428

### Providence

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	6	21,104	3	12,211
May	9	37,120	2	8,674
April	8	32,848	6	25,101
March	5	18,288	4	17,400
February	9	43,707	8	30,036
January	8	28,019	5	15,335
December	9	36,380	6	25,318
November	13	46,927	5	18,597
October	10	37,269	5	22,305
September, 1930	6	28,972	3	16,265

### Portland, Oreg.

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	30	116,953	35	139,799
May	24	94,695	39	142,847
April	26	104,099	36	141,036
March	41	158,869	46	173,220
February	24	95,726	43	175,697
January	29	119,686	47	192,455
December	27	107,300	52	197,628
November	30	122,020	53	208,266
October	40	155,991	54	207,118
September, 1930	30	122,022	46	182,641

### Baltimore

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	127	376,049	114	338,066
May	110	353,301	118	368,874
April	131	409,907	139	420,594
March	123	385,514	107	336,157
February	99	327,516	106	340,771
January	121	386,924	127	412,306
December	120	390,126	127	429,048
November	116	384,877	117	376,725
October	139	452,905	127	402,155
September, 1930	150	475,928	138	424,976

### Norfolk and Newport News

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	39	108,710	59	167,488
May	22	63,739	49	140,356
April	14	31,959	40	116,565
March	19	47,982	52	137,616
February	15	43,123	46	116,116
January	21	57,883	61	170,594
December	44	92,341	63	174,384
November	22	65,716	56	141,242
October	21	72,517	58	153,410
September, 1930	21	48,971	66	168,922

### Jacksonville

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	11	24,902	13	24,517
May	8	21,046	7	11,045
April	15	31,901	5	10,614
March	10	17,299	6	7,839
February	7	18,934	9	20,915
January	14	28,243	10	15,617
December	17	33,862	16	29,847
November	14	30,105	10	13,048
October	14	27,910	14	27,016
September, 1930	12	26,442	13	26,356

### Key West

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	63	81,660	63	86,349
May	83	91,683	80	90,758
April	60	55,493	51	54,656
March	60	69,731	56	72,956
February	61	70,169	56	69,443
January	61	82,218	57	80,394
December	56	71,327	56	75,588
November	49	63,307	50	64,389
October	50	61,288	49	60,432
September, 1930	48	64,968	48	64,742

### Mobile

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	88	197,952	93	217,151
May	103	194,198	93	194,198
April	107	251,402	108	242,685
March	109	232,778	102	229,966
February	93	222,163	86	206,376
January	112	282,874	111	249,375
December	91	208,802	84	194,477
November	106	241,663	99	220,755
October	99	187,035	92	196,893
September, 1930	83	184,276	81	171,679

### Seattle

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	52	220,915	52	223,750
May	43	185,945	43	184,118
April	50	214,534	48	210,117
March	47	207,105	49	212,237
February	48	212,187	53	233,121
January	54	238,037	60	266,744
December	56	240,203	61	256,724
November	59	255,728	57	245,592
October	57	246,957	63	272,114
September, 1930	62	268,203	58	250,301

### New Orleans

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	193	561,399	190	562,090
May	185	532,046	192	551,459
April	195	576,251	181	536,678
March	185	545,474	188	537,148
February	159	499,643	172	537,813
January	207	610,472	190	548,267
December	203	602,527	197	578,723
November	187	555,053	194	541,671
October	218	633,652	228	672,782
September, 1930	210	589,459	218	605,239

### Charleston

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	17	45,890	19	50,033
May	15	36,938	12	27,110
April	14	33,837	16	37,092
March	20	47,834	21	49,516
February	22	62,668	23	66,852
January	23	63,701	24	65,492
December	19	47,530	27	74,815
October	19	54,863	19	69,530
September, 1930	19	54,863	19	69,530

### Galveston

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	27	53,091	69	191,632
May	26	62,924	68	210,315
April	25	39,536	69	205,341
March	23	40,825	71	209,057
February	25	45,442	84	260,555
January	40	97,907	91	282,726
December	27	58,099	101	303,748
November	25	47,967	111	339,152
October	46	117,185	119	337,091
September, 1930	46	117,185	119	337,091

### Los Angeles

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	210	696,717	194	731,392
May	225	644,178	209	626,590
April	224	602,763	210	623,023
March	181	557,981	196	561,570
February	191	673,620	193	753,720
January	227	654,598	184	596,347
December	219	618,855	206	616,266
November	236	680,430	217	628,733
October	255	697,262	218	616,018
September, 1930	255	697,262	218	616,018

### San Francisco

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931	159	663,047	155	634,838
May	161	658,525	163	676,789
April	158	733,902	170	702,433
March	156	642,924	139	544,316
February	142	577,019	143	581,775
January	165	685,851	172	721,042
December	154	646,767	174	689,358
November	144	570,715	161	656,424
October	151	617,143	154	639,552
September, 1930	171	699,832	154	629,577

### Houston

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
June, 1931 .....	23	115,140	38	139,102
May .....	23	101,100	39	152,690
April .....	32	125,007	47	177,058
March .....	24	106,838	32	131,470
February .....	30	130,544	38	152,347
January .....	26	111,047	37	140,860
December .....	35	143,585	47	185,757
November .....	28	105,541	50	178,538
October .....	34	136,215	50	182,729
September, 1930 ..	32	140,415	62	220,024



# Modern Stevedoring and Dock Management

*Practical Ways to Cut Costs in Cargo Handling*

Conducted by  
H. E. STOCKER

## Some Observations on Cost Saving in Cargo Handling Methods

By H. E. Stocker

**O**N A RECENT trip to the Pacific coast, I was impressed by the long booms on the coastwise steamers. One steamer of the McCormick Steamship Co., a wartime shipping board lake type ship, formerly had booms 50 feet long. When this ship was put in the Pacific coastwise service, booms were fitted at the four hatches as follows: For No. 1 hatch, 60 feet long; for No. 2 hatch, 64 feet long; for No. 3 hatch, 66 feet long, and for No. 4 hatch, 68 feet long.

In order to accommodate the longer booms at No. 2 hatch, it was necessary to set back the outer support of the bridge and to move the rail so that the booms could be stowed. This arrangement is shown in an illustration.

Interesting experiments continue to be made in the handling of lumber in unit packages. Some bundles are 24 by 24, others 20 by 20 and some 12 by 12. The larger the package, the greater is the economy in handling, providing equipment is available to handle the larger unit. When the packages are loaded on deck, the economy is most marked because of the ease of stowage.

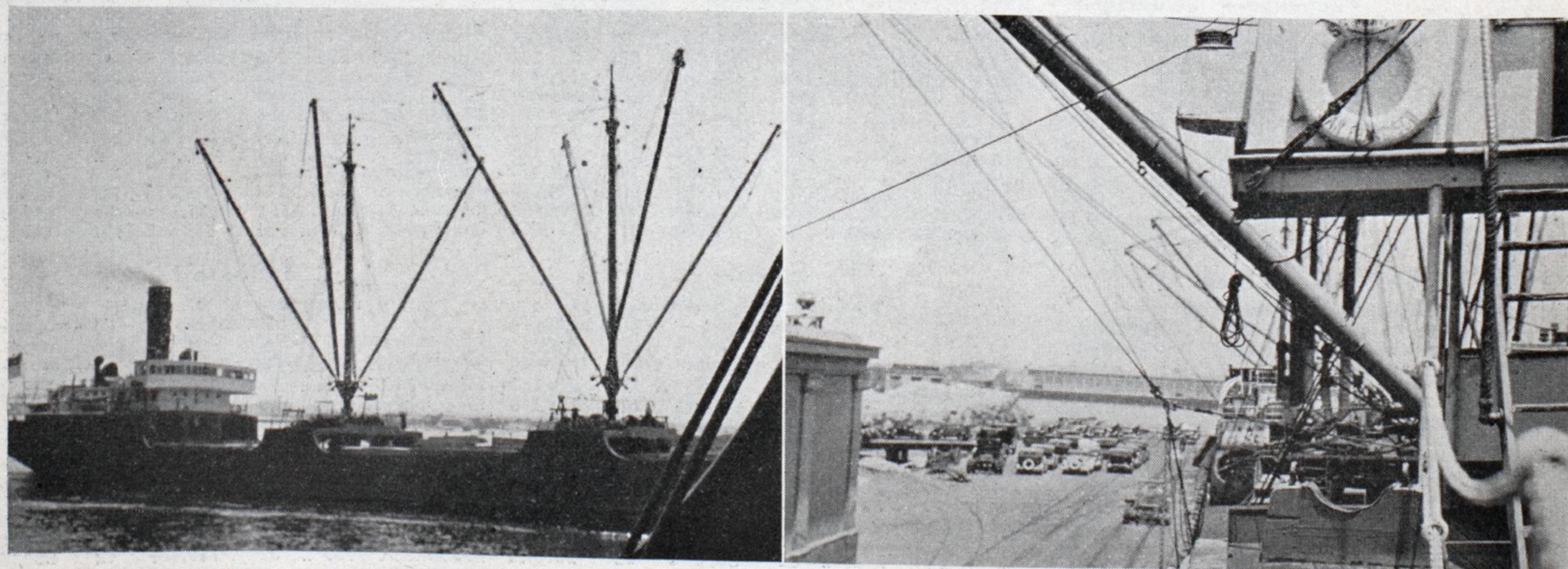
An important consideration in handling and stowing lumber in unit packages is that it results in less deterioration of the lumber than when it is piled loose. It has been found that green lumber can be stored in packages for over one year without spoil-

age of the lumber in the interior of the package.

A recent development in shipping lumber in packages is the development of a steel corner protector for shipments of flooring, so formed that it fits the tongue. This prevents damage by the steel strapping which holds the lumber together.

A new paint has been developed for the strapping which protects it against corrosion.

The use of screw type conveyors in handling flour across the terminal into the ship at the Great Lakes Transit Co. terminal, South Chicago, is a recent development of great interest, which I learned of when passing through Chicago. This operation will



*Long Booms are Favored on the Pacific Coast. Left—Typical Arrangement of Booms on a West Coastwise Steamer. Right—Stowage for 64-foot Boom by Setting Back Bridge Supports and Rail*



be described in an early issue.

Very rapid loading of flour and other bagged cargo, also bales of wool, has been made possible at low cost by the use of the screw type conveyor, the usefulness of which has been greatly extended by the provision of sections with slip sleeve permitting running the conveyor around sharp turns. The flexibility of the conveyor is also increased by putting casters on the power head, and the conveyor supports.

#### Conveyors for Handling Sugar

The screw type conveyor has also been used successfully at a San Francisco dock for handling raw sugar from shipside to the refinery. The conveyor is mounted on a scale so that the sugar may be weighed as it moves from alongside the ship. This operation will also be described in a forthcoming issue.

The use of skids and lift trucks for handling freight on San Francisco bay and river barge lines is quite general. The Bay Cities Transportation Co. and the Fay Transportation Co. were described in previous issues of the MARINE REVIEW. These two companies handle 95 per cent of their freight on skids. This includes less than carload cargo of almost every description.

The Pioneer line, Berkeley Transportation Co., Petaluma & Santa Rosa Railroad Barge line, all use skids on the dock and for carrying cargo on the barges, finding that the skids cut cargo handling costs, reduce claims and expedite the dispatch of the barges. It will be recalled that the Fay Transportation Co. when hand trucks were used, discharged around 13,000 cases of canned goods from the barges in approximately three days. By operating with skids and lift trucks, 11,000 cases are discharged in a total of about three hours.

There would seem to be an opportunity to cut costs and expedite barges and other craft in New York and other Atlantic coast harbors by adopting the skid and lift truck method which has proved so successful on the West coast in handling everything from pig lead to baby carriages.

A recent development on the Pacific coast of great interest, is the Kane hatch cover, developed by Captain Kane of the American Hawaiian organization at San Francisco. It is a wooden hatch cover designed to reduce handling, reduce accidents and reduce repair and replacement costs. The covers are made up in sections of two spruce planks ten feet long, riveted together. The weather deck covers are five inches thick, the other covers, 4 inches thick. The end of each cover is protected by a three-inch 22 gage steel band that goes around the entire end. See accompanying illustration. This reduces repair and replacement costs because



*Stacking Bags of Sugar on Conveyor for Removal From Shipline at Crockett, Calif.*

it is on the ends that breakage usually occurs. The long length decreases handling costs and keeps longshoremen from using hatches covers for dunnage, levers, etc. The handles, or grips, are off center so that a longshoreman cannot get his hands caught. Lack of this feature has caused accidents. In one case brought to my attention, a man was pulled into the hold when a hatch cover fell because his fingers caught in the handle of the cover.

#### Repairs and Renewals Cost Less

Captain Kane states that these covers should last five to six years and that repairs and replacements should not exceed \$50 a ship a year.

The strongback arrangements on the older ships of the line have been changed by Captain Kane so that they conform to modern ideas by eliminating fore and aft strongbacks and replacing with the usual modern type of strongback. On one ship this change has made it possible to clear the hatch in four hoists as compared with 19 hoists formerly.

I also talked with Captain Kane

relative to the cargo light developed by him and described in the June issue. The Kane cargo light gives better results than four ordinary cargo lights. The secret in obtaining the best results is in the proper placing of the brackets.

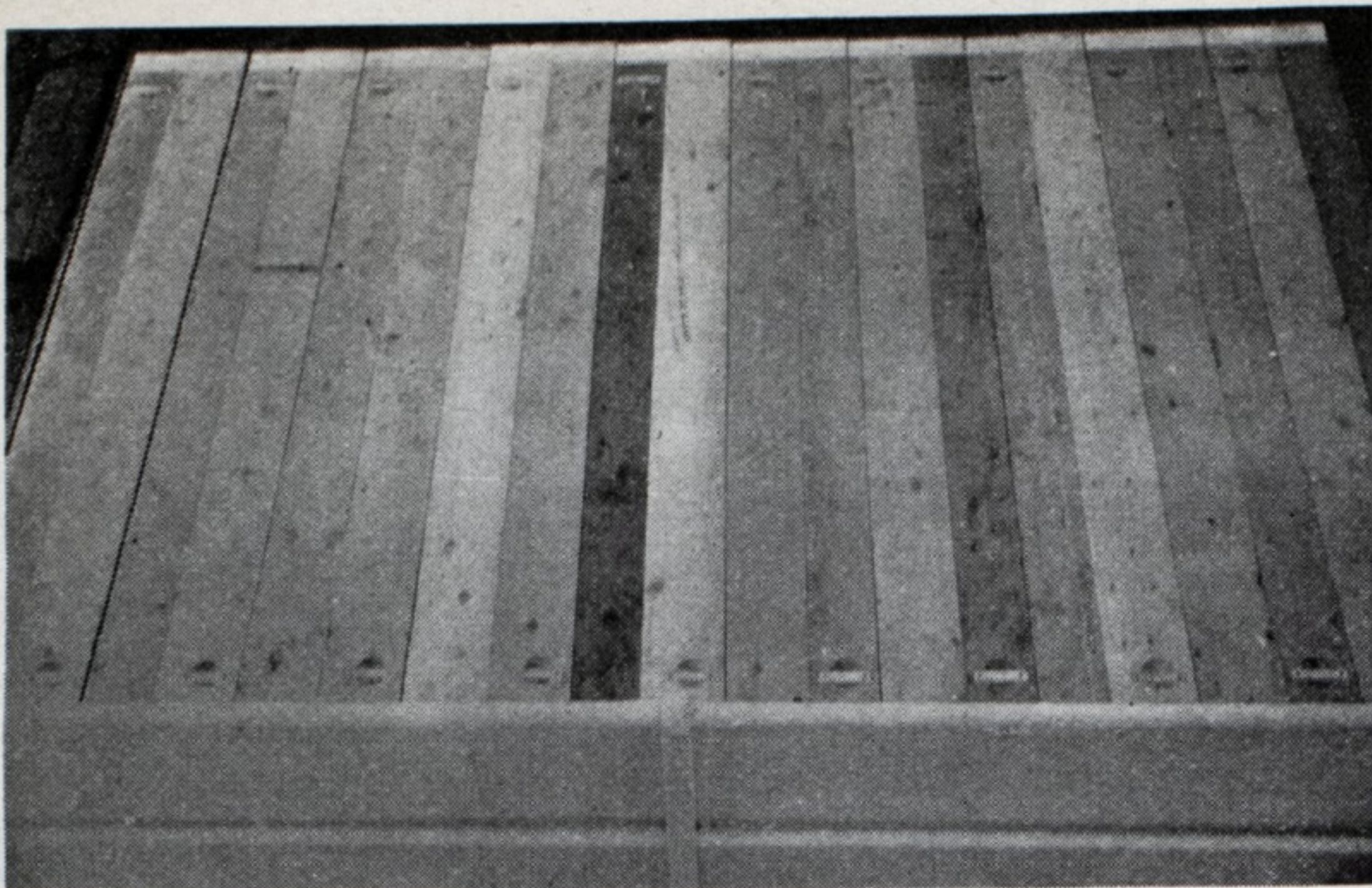
The lack of a standardized nomenclature for cargo handling gear causes a lot of lost motion when one is traveling. Platform slings particularly are called by many names, plasterboards, nail boards, airplane slings, dishes—these are only a few. Industrial practice has shown that determining on the best name for a given article is well worth the effort. To work out a standard nomenclature, some central agency is needed. An organization of stevedores and others interested in cargo handling should be formed for the interchange of information and creation of standard names and practices.

Significant developments are taking place on the Pacific coast in respect to developments of standard practices that may lead to great economies and improvement in safety of personnel.



*Package of Lumber Held Together by Steel Strapping for Convenience in Shipping*





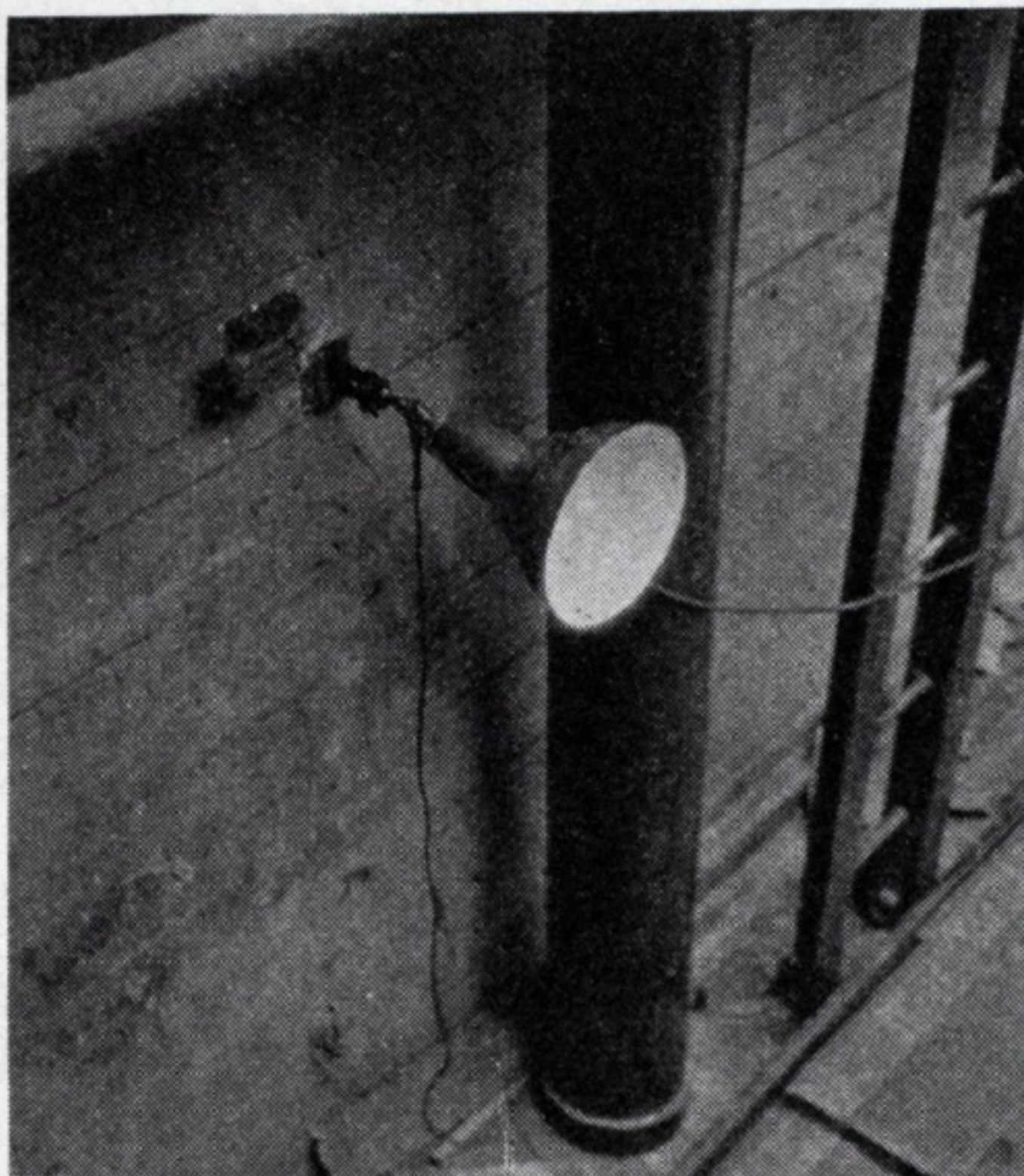
*Ship's Hatch Fitted with Specially Constructed Cover Developed by Captain Kane*

The handling of sugar at the California and Hawaiian Sugar Co.'s refinery at Crockett, Calif., is a most efficient cargo handling operation. During a period of five months raw sugar was discharged at the average of 117 tons per hatch per hour, with a gang of 17 men. The highest performance was 155 tons per hatch per hour and it is possible that this could have been exceeded if the refinery facilities had permitted receiving the sugar at a faster rate. As many as 207 slingboards have been taken out of one hatch in an hour. These achievements are possible because of the well trained gangs that do the work constantly, because of fast winches and the belt conveyors on the dock that remove the sugar as fast as discharged.

By having the ten hold men divided into five gangs of two men each, a slingload is always ready for the hook. An important feature is the changing the work of the men at two hour intervals. For example, the men on the landing platform are shifted at these intervals to the position at the head of the conveyor and the conveyor men are put to work on the platform.

On the dock the special type belt conveyors which are placed on scales, permit getting the bags of sugar away from the side of the ship quickly and weighing them quickly. The conveyor is mounted on a platform scale which in turn is carried by a steel frame work fitted with

car wheels. Tracks laid along the dock make it possible to shift the units, for spotting opposite ship's hatches. Each unit is provided with



*Kane Cargo Light on Bulkhead*

jacks for accurately leveling the scale. A set of test weights is so mounted that by moving a lever they may be placed on the scale or removed. A revolving brush cleans the belt, immediately removing all loose sugar spillage: otherwise the accuracy of the weighing would be impaired. Careful checking has conclusively proved the accuracy of this method of weighing, and the weights are accepted by both the refinery and the plantations as the basis for purchase.

The slingloads, consisting of sixteen bags, are landed on a platform at the edge of the apron on the upper deck of the dock. Formerly the bags were trucked by hand truck. There were 20 trucks per hatch and the rate of discharge 675 tons in eight hours. The conveyor scales increased the discharging rate about 1000 tons in eight hours and saved twenty truckers.

Two men on the platform, with the assistance of two men on the floor next to the platform also two men at the head of each conveyor, throw the bags to the conveyors, one bag to the right conveyor and the next bag to the left conveyor. This puts eight bags on each conveyor. As the bags move, the two weighers set the scale and record the weight. If there is delay due to any cause, the weighers may stop the conveyor belt until weight is obtained. The sampler takes samples as the bags move on the dock conveyor.

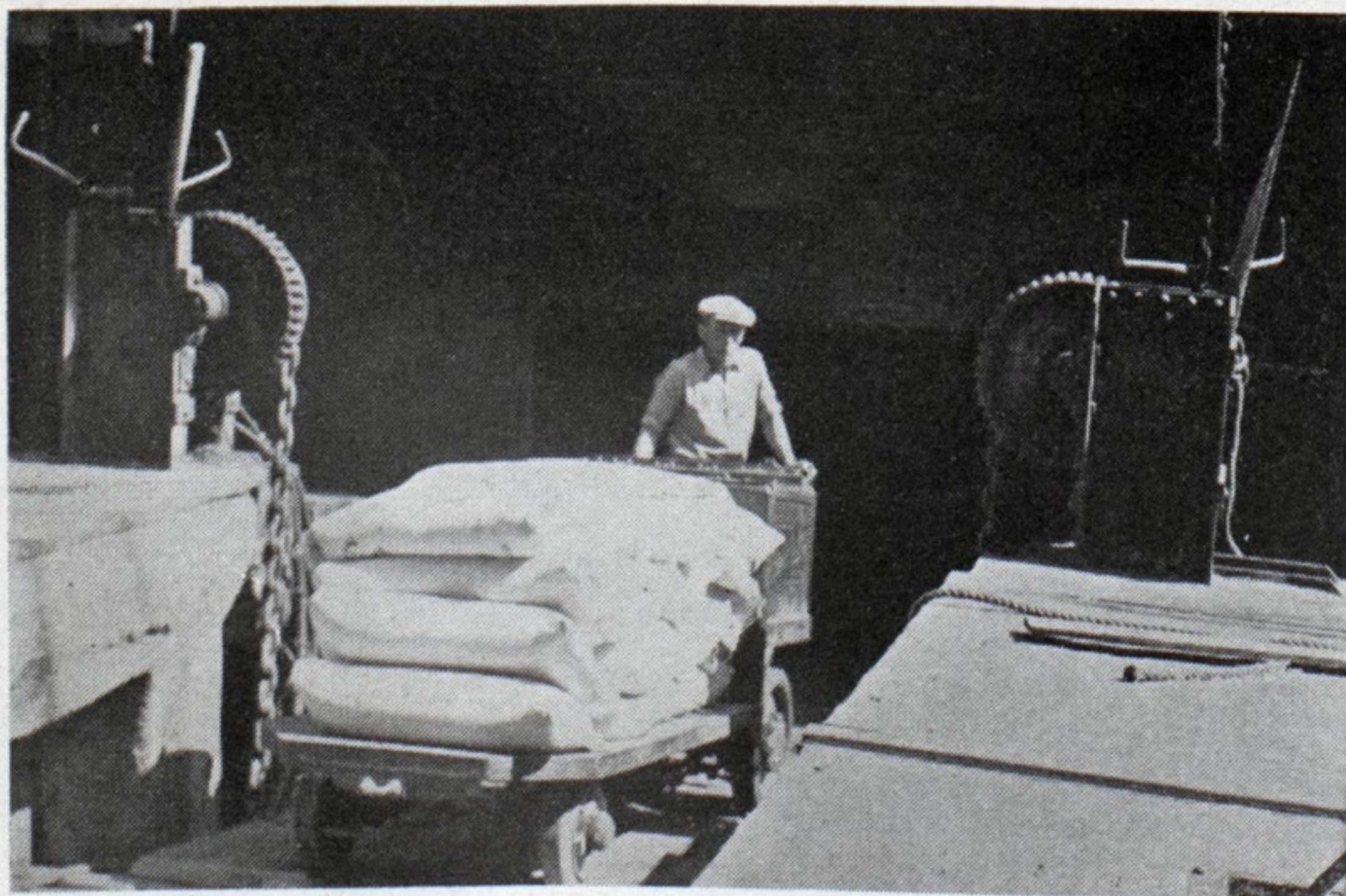
The bags are dumped from the shipside conveyor to two belt conveyors one of which runs to the refinery, the other to raw sugar storage warehouse. An automatic device has been provided which sends any desired number of bags to the refinery or to the warehouse, or alternately to both. For example, two bags to the refinery and five to storage. All that is necessary is to plug in on the combination wanted.

Only two hatches are worked at a time because with an average discharge of 117 tons per hatch per hour, the refinery and warehouse facilities cannot handle more than the sugar coming out of two hatches. However, around 2000 tons of sugar are discharged in eight hours by two gangs and another 1000 tons by a night gang working one hatch. A total of around 3000 tons is discharged in one calendar day.

Both raw and refined sugar is handled in the refinery and the warehouse by an elaborate system of conveyors all of which are controlled at a central station. The screw type conveyor mentioned previously is used for certain operations supplementing the belt and slat conveyors. Ten electric lift trucks are used throughout the warehouse and the refinery for handling boxes and barrels.

Raw sugar is stored as high as 60 bags in a pile. Great skill in building the pile is necessary to prevent the piles from collapsing.

I talked with the Matson Line officials about the use of side ports. They have had no difficulty with leaky ports, a frequent objection offered to the use of side ports in offshore ships. They have found the advantage in side ports to be faster dispatch of ship than is possible with overall hatches because a greater number of men can be put to work in handling cargo through side ports, than with hatches alone.



*Electric Truck Handling Cargo Through Side Port of Matson Line Ship*



# Deep-Sea Pier at Vancouver, B. C. is of Modern Design

By A. W. Earl

**I**N 1927 the Canadian Pacific Railway Co., to accommodate its own transpacific passenger liners and the growing shipping of the port of Vancouver, B. C., completed a deep-sea pier which ranks among the finest on the Continent.

This pier which is known as Pier B-C occupies a position approximately midway between two older piers, belonging to the same company, known as Piers A and D. It lies in a northeasterly direction making an angle of about 50 degrees with the water-front and the railroad yards of the company, which lie adjacent. It has an overall length of about 1100 feet and a width of 331 feet, with 1080 feet of berthing space on each side and 380 feet of berthing space at the outboard end. The depth alongside at low water is 35 feet, and the slips on the east and west are, respectively, 334 feet and 355 feet in width.

On both sides of the depressed central area and immediately adjacent thereto are single story transit sheds 110 feet in width connected at the outboard end. Outboard of the sheds are wharf aprons, 30 feet wide on the sides and 14 feet 6 inches wide at the end of the pier.

At the inner end of the pier the two transit sheds are surmounted by a second story which spans the central depressed area and provides accommodations for passenger traffic. This second story contains a passen-

ger concourse, offices, baggage room, store rooms and customs examination room. A passage leads from the concourse to the customs examination room which is a narrow room extending for the full width across the rear of the second story. This customs examination room at either end connects with a covered walkway on the roof of the transit sheds which runs along the outer edge of the roof for the full length of each shed and across the outer end. By means of a movable gangway passengers may enter or leave a ship along this walkway and passenger traffic is thus entirely excluded from the main deck of the pier, which is entirely devoted to freight.

## Approach by Overhead Viaduct

Highway approach to the pier is had by means of an overhead viaduct, running parallel to the water-front, connecting directly with the second story of the pier. Piers A and D lying respectively to the west and east of Pier B-C are approached by extensions of two city streets which cross the railroad yards on steel viaducts and the viaduct to the new pier forms a cross connection between them. Access is had to the lower deck of Pier B-C by means of a ramp. Driveways are provided down the center of each shed and across the connection between the sheds at the outer end of the pier.

The pier is connected by railroad tracks to the adjacent railroad yard. There are four tracks down the central depressed area and two tracks along each side apron of the pier. Both in the central area and along

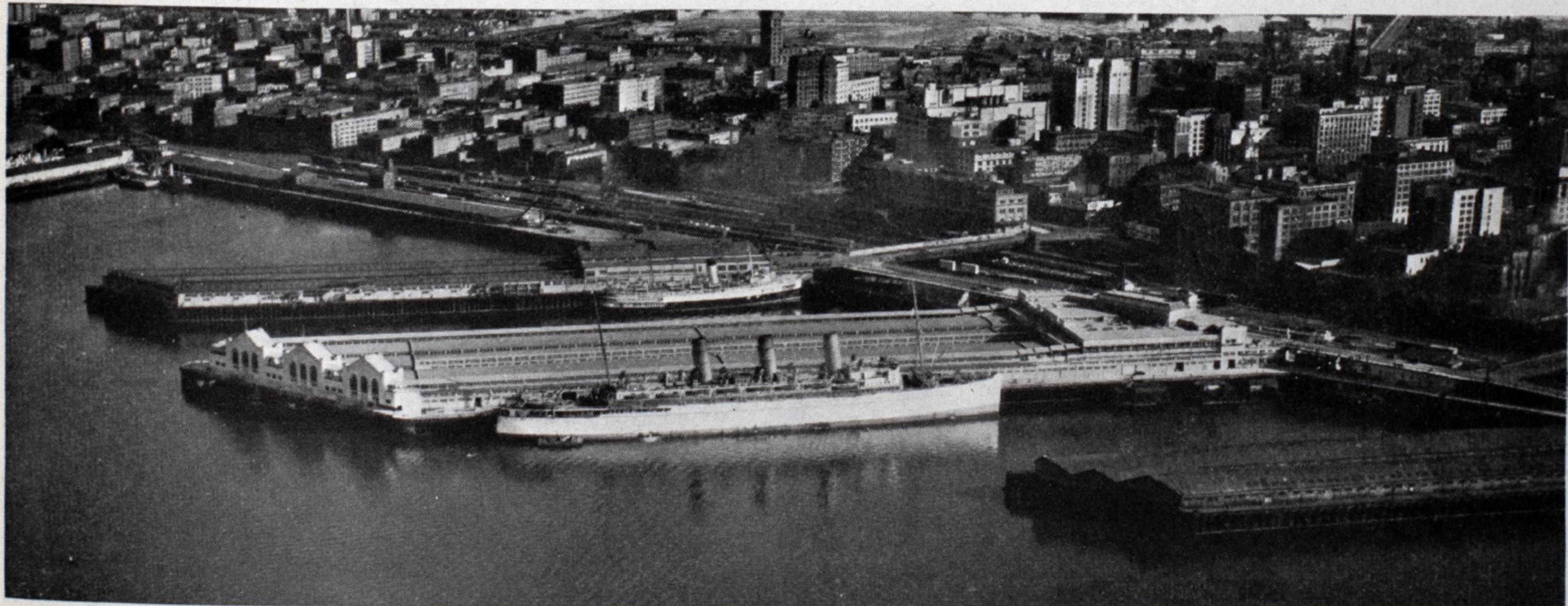
the sides of the pier there are cross-overs between the tracks to provide for convenient switching.

The sheds are of timber with the exception of the two story portion which has a steel frame and concrete front wall. The construction in general consists of heavy timber trusses and columns with wooden wall and roof sheathing and five-ply tar and gravel roof covering. On both the inner and outer sides of the sheds the doors are continuous and on the inner sides, along the central depressed area, the building columns are kept back 10 feet from the wall to provide trucking space for loading and unloading cars and to obviate the necessity of spotting cars. The floors of the sheds and the aprons and driveways are paved with 1½ inches of bituminous mastic which has proved very satisfactory since the hard durable surface makes for easy trucking.

The shed doors, which are Richards-Wilcox heavy duty mill type sliding doors, have proved very satisfactory and are perhaps worthy of special mention. The door panels, which have an area of about 10 feet by 12 feet, are constructed of 1¾-inch square dressed and matched fir strips retained by means of a welded channel frame. These doors, operating on ball bearing hangers, are durable, slightly and easy to operate.

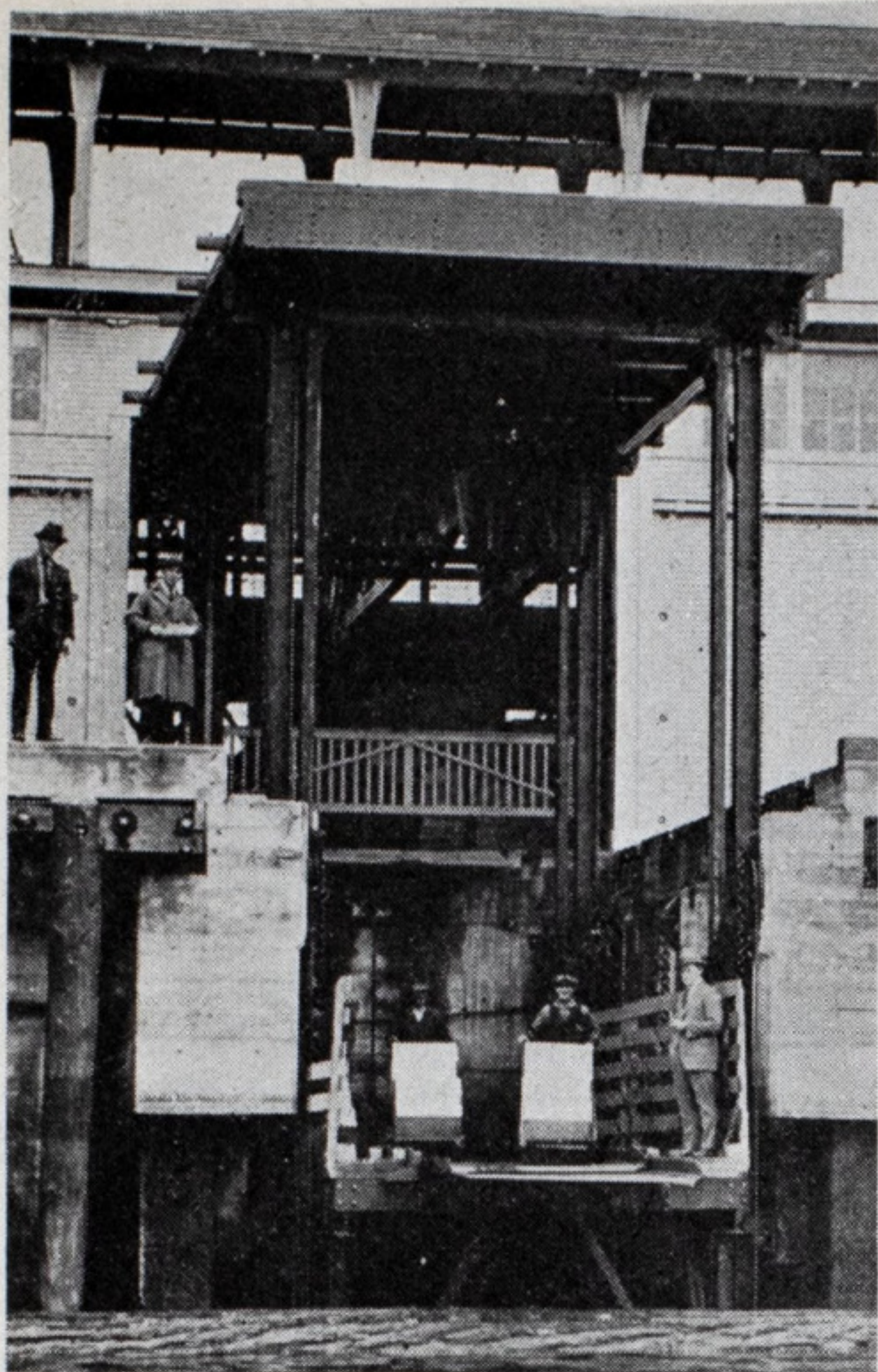
Each shed is divided into three approximately equal parts by means of cross walls of concrete, so that, including the connecting shed at the outboard end of the pier, there are seven separate fire areas. Each of these areas, as well as the second story, is protected by a dry pipe sprinkler system with two sources of supply. The pier, both inside and outside of the sheds, is protected also by means of frequent hydrants.

Three phase electric power is supplied at 2200 volts to two transformer stations situated in vaults under the main floor, one at each end of the pier. These vaults are of concrete construction and each has two



*Airplane View of Canadian Pacific Railway Co.'s Pier B.-C. Vancouver, Canada—Taken by Pacific Airways Ltd.*





*Elevator in Use. Railroad Bridge Raised—Pier B-C Canadian Pacific, Vancouver*

rooms, one for 2200-volt equipment and the other for 550 and 220-110-volt switching equipment for power and light respectively. The lighting system is of 220-110-volt grounded neutral with three wire branch circuits, this installation being considerably cheaper than the customary 110-volt-circuit two wire system.

#### **Adequate Lighting is Essential**

Care has been taken to provide adequate lighting to facilitate the handling of freight. Inside the sheds three rows of 100-watt lights at 20-foot centers down the length of the sheds provide general illumination for patrol purposes. These lights are controlled by three-way switches located at each end of the sheds. Four rows of 300-watt lights controlled in pairs by switches, are likewise spaced at 20-foot centers and provide intensive illumination when freight is being handled. Outside the sheds, to provide intensive illumination of the space between shed and ship, there is a row of 300-watt lights

located over the doors. These lights also are controlled in pairs by switches. The central area between the sheds is illuminated by flood lights.

Ships services are provided consisting of fresh water, fuel oil and diesel oil. Outlets for these services are at convenient places along the face of the pier.

The mechanical equipment of the pier consists of the following:

One 20-ton team elevator running between the viaduct and the main deck of the pier.

Two 10-ton baggage elevators connecting the main deck with the baggage room.

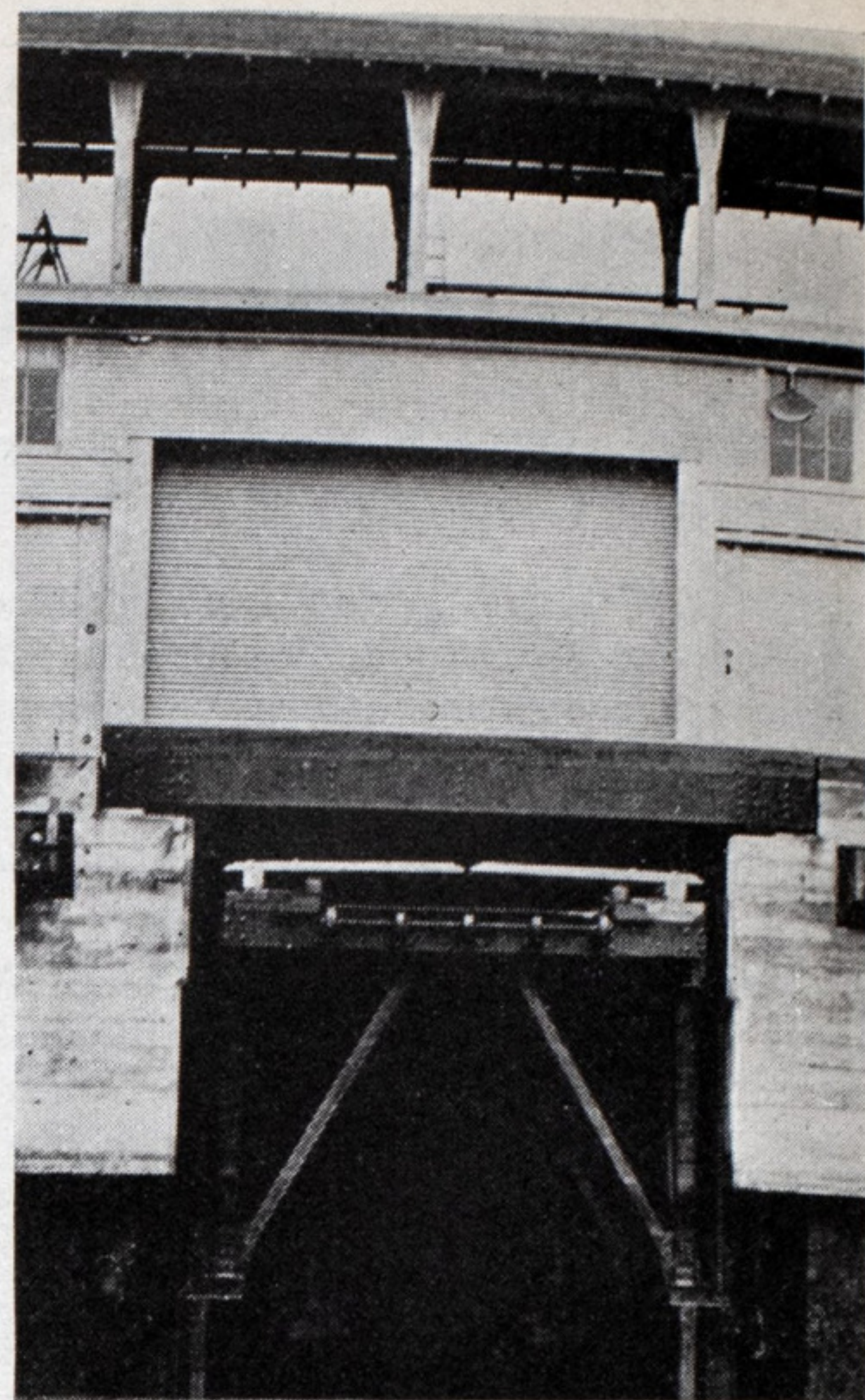
Two 5-ton semiportal level-luffing traveling cargo cranes. One of these cranes operates on each side of the pier.

Eight Barlow type marine elevators of which there are three on each side and two at the outer end of the pier.

#### **Special Cargo Handling Equipment**

Of the special equipment provided on the pier, perhaps the most important are these marine elevators. They are so constructed that when lowered an apron is projected outward into the side port of the ship, thus enabling freight to be moved directly from the ship to the deck of the pier. Most of the coastwise boats are loaded and unloaded entirely through their side ports, but the ocean going vessels use their side ports only for the transfer of baggage, silk and similar valuable and fast moving cargo.

Due to the arrangement of railroad tracks and crane rails on the apron of the pier, where the elevators must be located, it was necessary that their construction be of such a design as would allow a flush surface when required. To meet these conditions at each elevator a section of the pier deck carrying the rails, was constructed as a bridge spanning the elevator well. Mechanism is provided so that each bridge may be hoisted a distance of 15 feet, thus clearing the elevator shafts for the operation of the elevators. The



*Elevator in Stowed Position—Bridge Lowered Spanning Well Pier B-C Canadian Pacific*

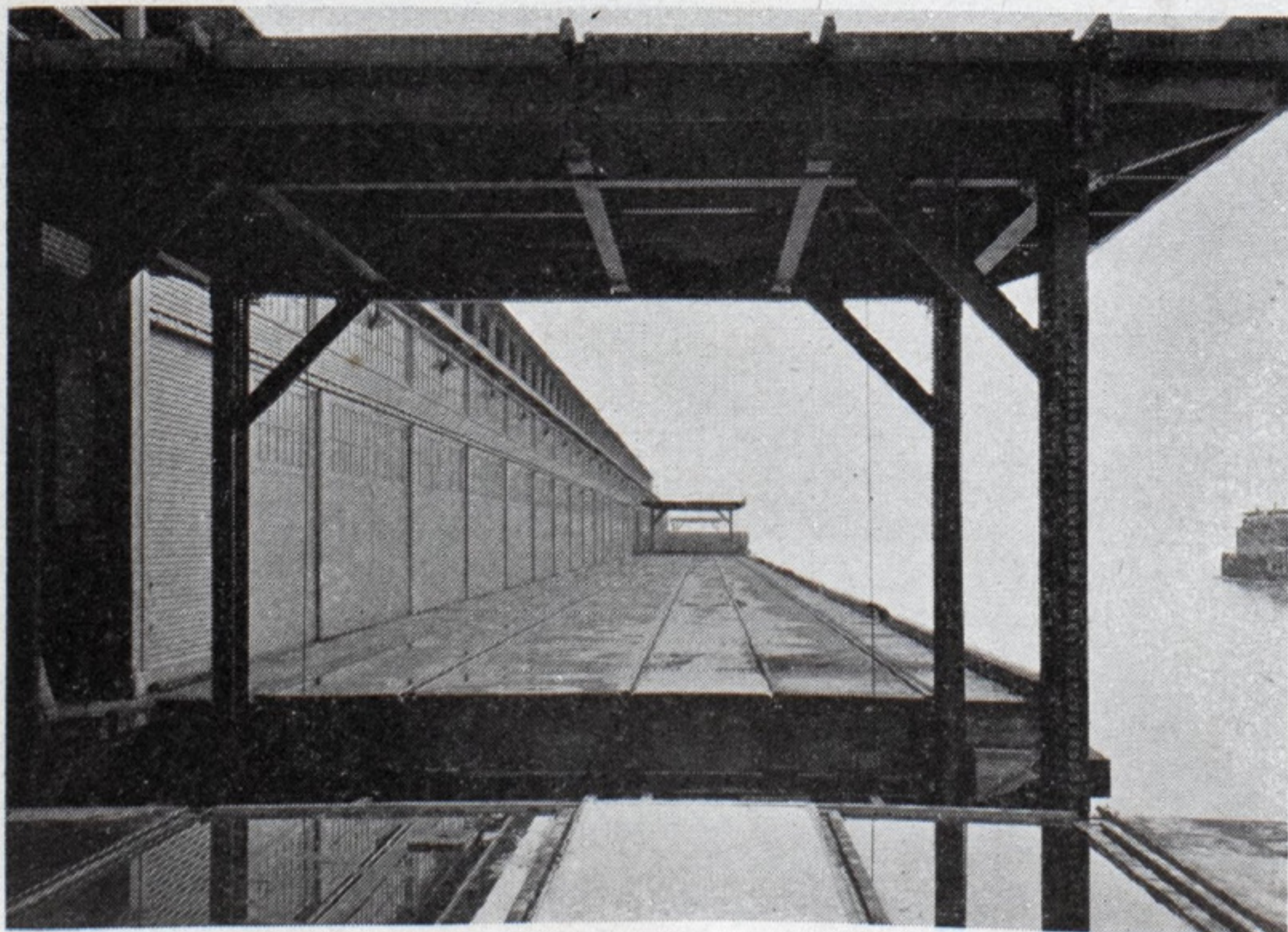
machinery is mounted inside the sheds so that, when the elevators are not in use, and the bridges are lowered, the apron of the pier is available for rail traffic. The usual operating features of this type of elevator, which are necessary for the economical and efficient transfer of freight between dock and ship are all retained in the flush type elevators. The platforms are 29 feet 10 inches long by 10 feet 6 inches wide with capacities of  $2\frac{1}{2}$  tons traveling at 100 feet per minute, or 10 tons at 25 feet per minute. The hoisting cables are attached to each of their four corners, a type of construction which is essential for the efficient operation of elevators of this size and capacity.

#### **Telescoping Steel Aprons Provided**

All platforms are equipped with automatically telescoping steel aprons which provide the connection between the dock and ship's side port. These may be adjusted to extend any distance up to a maximum of 8 feet beyond the face of the pier.

These elevators were successfully designed to meet the requirements of the pier without sacrificing operating efficiency. Their large platforms and capacities, high speeds and ease of operation make possible the rapid transfer of cargo from side ports without congestion or damage and because of their flush construction when not in use, they in no way interfere with the operation of the cargo cranes or the switching of cars.

The Sydney E. Junkins Co. Ltd., Vancouver, B. C., acting as engineers for the Canadian Pacific Railway Co., was responsible for both the design and construction of the pier.



*Side View of Elevator Well With Railroad Bridge Raised—Pier B-C Canadian Pacific, Vancouver*



# Useful Hints on Cargo Handling



**T**HE new West Basin terminal under construction at Los Angeles will have facilities for handling passengers. A runway will be constructed along the offshore side of the shed, elevated to allow handling of cargo into the shed and permitting easy access to ships. The runway will be open to the weather on the offshore side. It rains so little in Southern California that it is an advantage rather than a disadvantage. Windows are provided on the inshore side of the runway so that passengers may watch cargo handling operations in the shed.

Two shipside tracks are planned on this terminal with crossovers so arranged that cars can be switched from or to one ship without disturbing other ships. Tracks will be on the inshore side of the shed lower than the floor of the shed so car floors will be level with the shed floor. These tracks will be paved so trucks may load and unload at this side of the shed when tracks are not in use.

Cargo masts will be provided on this terminal and on all future terminals constructed in Los Angeles harbor.

Trinidad asphalt floors for dock floors has been used at Los Angeles with greater success than American asphalt because it remains hard at higher temperatures. When asphalt floors become soft, freight will cause roughness in the surface and trucking is interfered with.

The new pier, Pier 23, now under construction at San Francisco, will be 150 feet wide and 800 feet long. There will be a depressed shipside track on one side and a surface shipside track on other side of pier.



*Handling Barrels of Vinegar from Ship to Car, McCormick Terminal, Los Angeles*

*THIS page is being devoted to short items on all matters having to do with the more efficient turn-around of ships. These items are intended to be of a helpful nature.*

*We will welcome for this page brief descriptions, illustrated if possible, of any better or safer way of performing any function in cargo handling. Also, any questions submitted will be answered by the editor.*



*Special Type of Gear Used in Discharging Automobiles at Los Angeles*

## Push Bar Conveyors

**A**T BAY Transport Co., pier 1, San Francisco, push bar conveyors are used for loading bags of sugar into motor trucks. These are operated with a gasoline motor and are towed about the pier by the motor truck to the various piles at which the truck is loading. Two men are used at the pile and two in the truck.

The whole pier is divided into sections which are numbered. Each pile of sacks from the driveway down the center to the wall, is a section. The numbers are on signs hanging above the pile at the driveway. In this way it is easy to direct truckmen to the particular piles at which they are to land the various grades of sugar to be taken away.

At Crockett, Calif., the Bay Transport Co. uses a trailer for the 700-foot fall, loading the trailers with hand trucks and portable ramp. The trailers are taken to the gangplank only because of conditions within the ship.

The new Ford assembly plant at Long, Beach, Calif., has two gantry cranes on the wharf where ships are loaded and unloaded. A storehouse is provided in the second story

of the factory building. The cranes discharge cargo to this story, dropping slingloads on a balcony platform. Two shipside tracks are provided but without crossovers.

## The Lion and the Lamb

**P**RACTICE and theory often seem to clash. An old practical hand looks with ill-concealed contempt on the enthusiastic young reformer feeling that he has no knowledge of actual conditions. In no line of endeavor would this be more so than in loading and discharging ships. This is the superficial side of it. Actually, the intelligent, efficient, practical man has become so, due to his ability to think and his instinctive knowledge of human nature. Such a man is quick to recognize that any problem no matter how practical it may seem, can only be solved by intelligent analysis, even though no high sounding designation is given the method.

The basis of advancement must come from sound theory practically applied. Many operations on the pier are subject to improvement by the proper kind of study. The successful dock superintendent would welcome such a study and would give his hearty co-operation. This presupposes the proper kind of approach and personality on the part of the theoretical as well as the practical representative. It is the function of the executive to co-ordinate these apparently discordant elements so that a truly co-operative effort is obtained which is certain to lessen waste and reduce the time and cost of cargo handling. Without this co-operative effort, the elements of time and cost will remain at a high level.



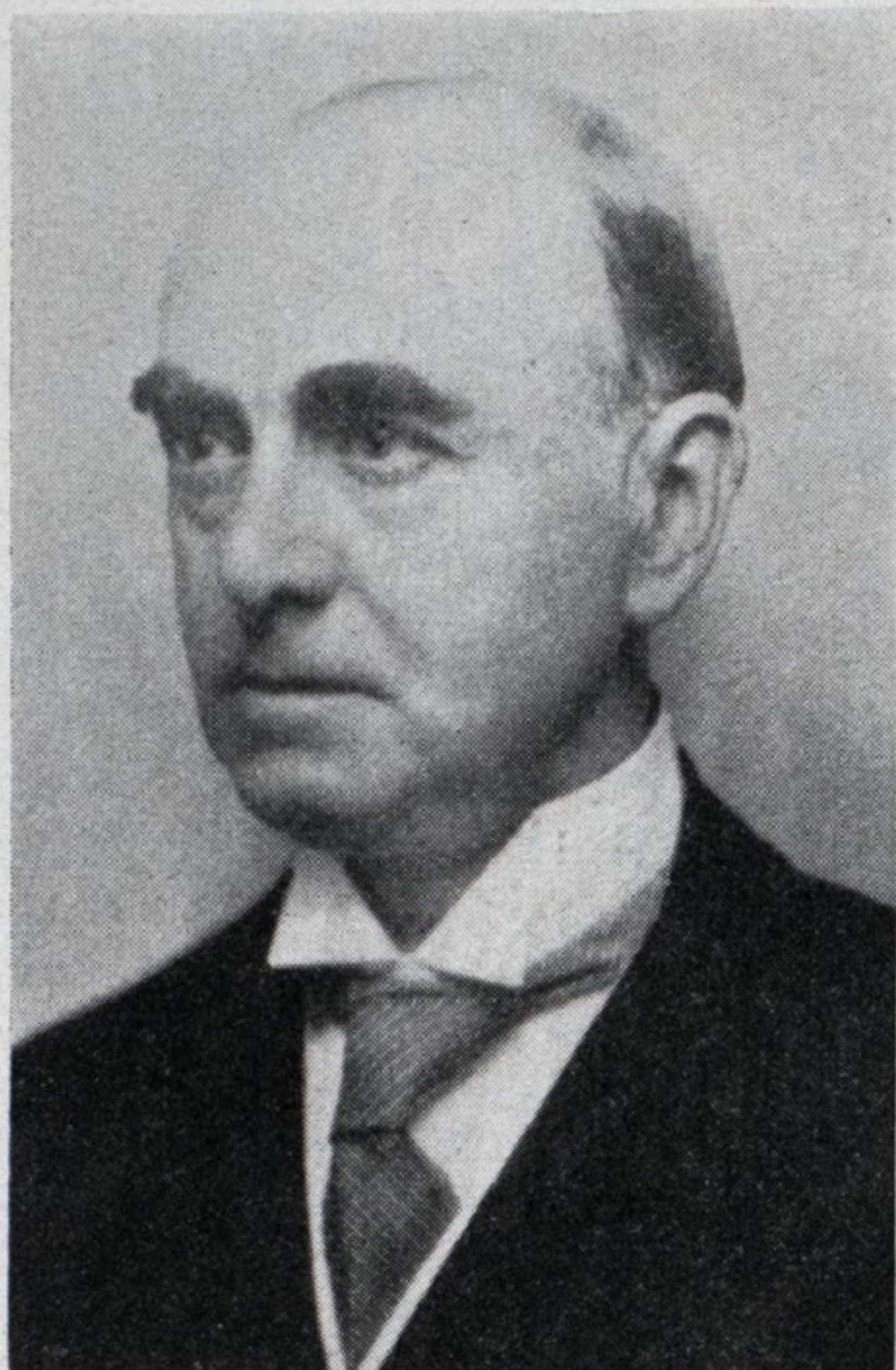
*Discharging Bananas Through Side Port Hatch Belt Conveyor*



# Personal Sketches of Marine Men

Sir David J. Owen, General Manager, Port of London Authority

By A. E. Fry



**T**HE value of having the right man in the right place has never been better demonstrated.

**G**IVEN wide powers, his management has materially lowered charges at one of the greatest ports.

**I**N DEVELOPING and improving the Port of London an example has been set for all the world.

**T**HE Knighthood conferred upon David J. Owen, general manager of the Port of London authority, in the 1931 New Year's honor list is a recognition of the notable achievements of the recipient and the far-reaching importance of the duties connected with the administration of Great Britain's premier port, a post which has been described as the "blue ribbon" of port administration. In relation to trade, the Port of London authority is the most important public body in Great Britain.

David John Owen went to London in 1922 with a wide experience which has been invaluable to the Port authority in solving the problems of running the port through which flows more than one-third of the total trade of the United Kingdom. Educated at Liverpool institute, he served his business apprenticeship for 13 years with the Mersey Docks & Harbor board, later becoming manager and secretary of Paul Bros., well-known flour millers of Liverpool and Birkenhead. In 1908 he went to the port of Goole as assistant manager, subsequently becoming manager of Goole docks. He left this position in 1915 to join the Port of Belfast as general manager and secretary.

The period since Mr. Owen's connection with the port of London has been one of great activity and progress. Improvements involving an expenditure of over £5,000,000 have been inaugurated and completed. These included the extension of the Tilbury docks and the provision there of a new entrance lock capable of accommodating the largest vessel afloat, as well as a new dry-dock; the modernization of the West India & Milwall dock system; the passenger landing stage in the river at Tilbury; new docks and equipment at the Surrey Commercial system for London's timber trade, the completion of the river dredging program and many other works.

Equally important have been his strenuous efforts and achievements in the direction of economy. Wherever the opportunity occurred, mechanical appliances have been

installed and operating efficiency has been effected through extensive staff reorganization. Economies have enabled the port authority to make reductions in port charges of nearly £1,000,000 per year since 1925.

The improvement and lowering of charges at the port of London are of far-reaching significance. Since London serves such an enormous local market and is the world's financial and international trade center, any management which tends towards reduction of production and distribution costs is a stimulus to trade throughout the British empire and other parts of the world at a time when every contribution to this end is worthy of the utmost commendation. The result of the Authority's efforts is reflected in the steadily increasing shipping traffic of the Port of London. Notwithstanding the slowing down generally of trade throughout the world, the tonnage that used the Port of London during 1930 was 58,085,598 net registered tons compared with 57,578,355 net registered tons for 1929, itself a record year. The value of the overseas trade of the Port of London is now well over £700,000,000 per annum. "While London is and probably always will be primarily a great cargo port, the passenger trade continues to increase," declared Sir David in a recent survey. "Over 300,000 passengers used the port in the year 1929, compared with 144,700 in 1921, and the new accommodation will enable very many more thousands to be dealt with."

He is well known in the transport world, and is a lieutenant colonel in the engineer and railway staff corps of the Royal Engineers (T. A.), a vice president of the Institute of Transport, and a member of the executive committee of the Dock & Harbor Authorities' association. He has published several books, including *A Short History of the Port of Belfast*, *A History of Belfast* and *The Port of London—Yesterday and Today*. Although the Port of London is his hobby, Sir David is a keen angler and is also much interested in art, possessing considerable skill in water color. He is president of the Port of London Authority Staff Arts & Crafts society.

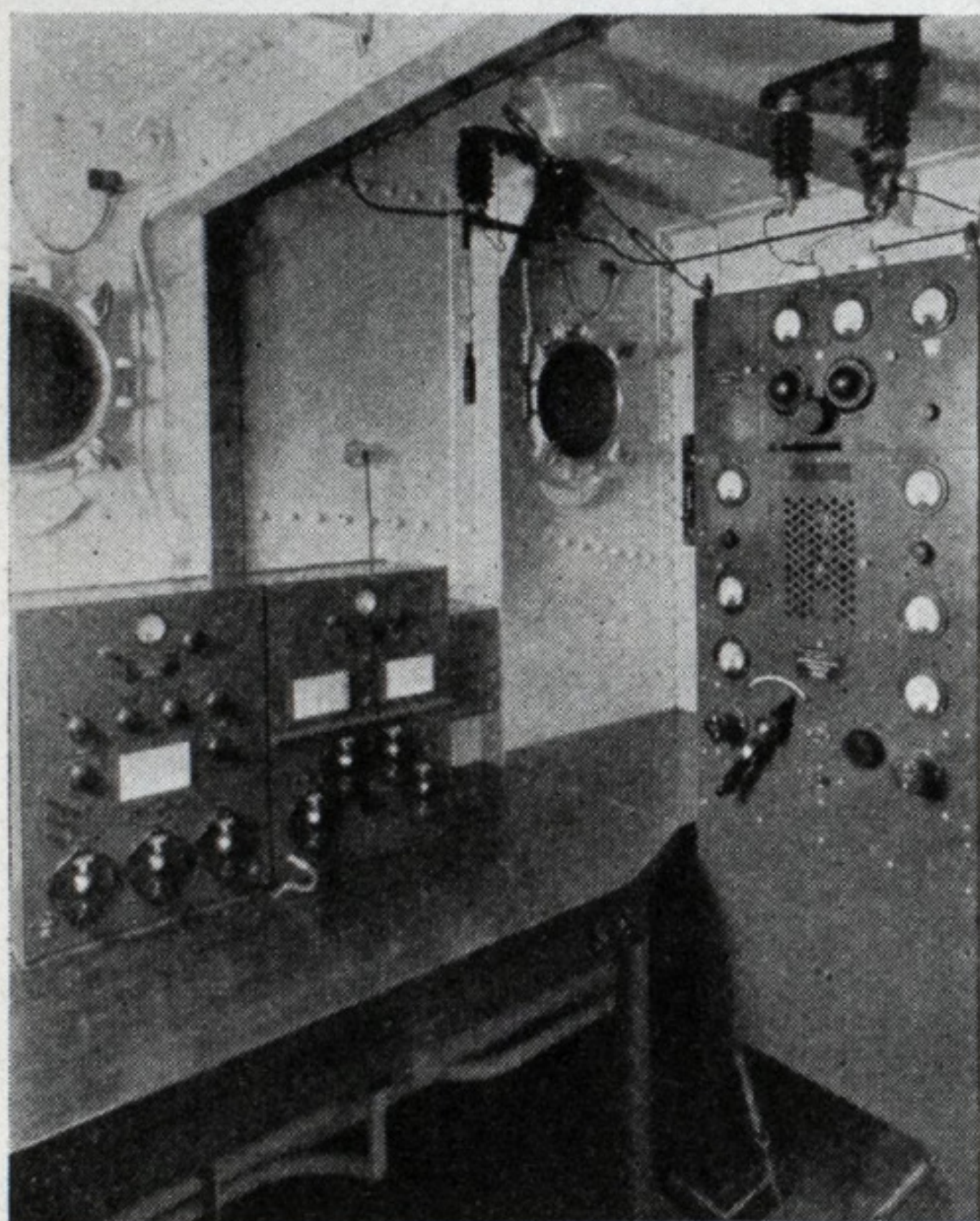


# Equipment Used Afloat and Ashore

Combination Short and Intermediate Wave Radio Equipment—Large Rubber Stern Bearings—An Economical Steam Trap—Building up by Welding

**M**ACKAY Radio & Telegraph Co. 67 Broad street, New York, is installing its new type ship radio equipment and Kolster radio compasses (direction finders) on the five new Baltimore Mail line ships, CITY OF BALTIMORE, CITY OF NORFOLK, CITY OF NEWPORT NEWS, CITY OF HAVRE and CITY OF HAMBURG.

These new ship radio telegraph equipments are of a unique design combining both short wave and intermediate wave operations in one panel, using one vacuum tube and one motor generator, in contrast with the usual practice of using a complete separate unit for short waves. This



*Mackay Radio, Combination Short Wave and Intermediate Wave Ship Equipment*

results in compactness and a minimum of space for all types of ships.

Similar equipment has been installed on the four new American Export line ships. These vessels are the EXCALIBUR, EXETER, EXOCHORDA and EXCAMBION.

## Large Rubber Bearings

**W**HAT was unique yesterday or the day before, becomes commonplace and accepted practice today. Many a shipbuilder and ship operator no doubt shook their heads in doubt when it was suggested that instead of lignum-vitae wood lining for stern bearings, rubber be used. It seems inconceivable that rubber in any form could stand such tough service. Experience, however, shows that it will stand up, properly installed and lubricated, better than any other type of bearing.

Goodrich cutless rubber bearings were installed on the HARVESTER of the International Harvester Co., at the Chicago Shipbuilding Co. The stern bearing on this ship is for a shaft 12 7/8 inches in diameter. A similar type of bearing is installed for the rudder pintle. These pintles are 6 inches in diameter.

The Canadian vessel LAVALTRIE, owned by the Dominion of Canada, department of marine, is equipped with two cutless bearings for 7 15/32 inches shaft.

## Economy of Operation Is Claimed for New Trap

**A** NEW and unique steam trap has recently been put out by the C. J. Tagliabue Mfg. Co., Brooklyn, for which unusual economy in operation is claimed. The new and exclusive differential setting feature makes it possible for the trap to discharge condensate at a temperature corresponding to a uniform differential pressure from 0 to 20 pounds below the operating steam pressure. If the trap is set to discharge condensate at a temperature corresponding to as much as 20 pounds less than the operating steam pressure, it will discharge the condensate at this differential regardless of whether the steam pressure is 50 pounds 75 pounds, or 125 pounds and without any further adjustment of the differential setting.

Reversible as well as renewable monel seats and disks are fitted two for one in every trap. By unscrewing and reversing the seat the outlet end becomes a new seat and inverting the disk, the reverse, extra disk is brought into play.

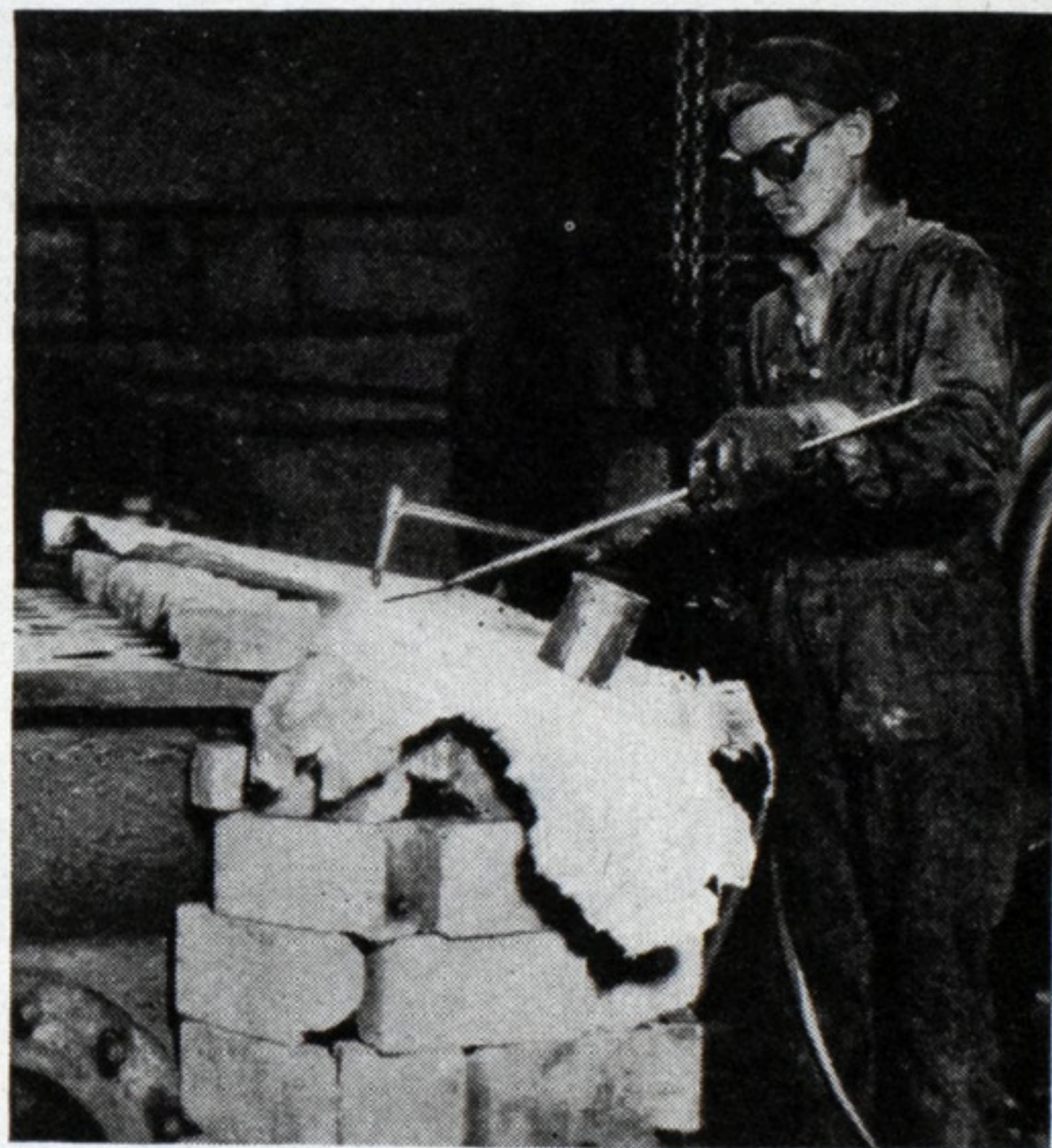
The trap is made in the one-inch size only as the full 5/16-inch valve opening assures ample capacity and permits of easy interchangeability on every steam line.

## Overcome Effect of Salt Water by Oxwelding

**O**N their return trips, after having discharged their cargoes, oil tankers frequently carry sea water as ballast. As the same cargo pumps handle both oil and ballast, the pumps are subjected to the corrosive action of sea water. One oil company recently found that the cargo pumps on one of its tankers had corroded so badly as to interfere with operation.

A contract welding shop was consulted and it was found that the corroded areas of the pump castings could be restored quickly and economically by oxwelding. The pumps were dismantled and the two 2-ton castings removed to the welding shop. The corroded surfaces were cleaned and prepared for welding with cast iron welding rod. A temporary brick preheating furnace was built around the end of the casting containing the corroded sections and this part was preheated for about 4 hours using charcoal for fuel.

The corroded sections on the upper face of the casting were repaired first. A portion of the front of the



*Building Up Damaged Areas With Cast Iron Welding Rod*

preheating furnace was then removed to permit the welding of corroded areas in the cylinder bore. Only about 5 hours actual welding time was required for each casting. When the welding was finished, the castings were preheated to an even temperature; then allowed to cool very slowly. About 100 pounds of cast iron welding rod and one pound of Ferro flux were required for the work on the two castings.

When the surface of the casting was planed down to permit placing the cylinder head in proper position, the interior showed the weld metal to be perfectly sound and free from blow holes. No difficulty was experienced in machining the welded sections of these castings showing that the weld metal was the high quality gray iron which is easily obtained by following the correct procedure for oxwelding cast iron. Linde Air Products Co., 205 East Forty-second street, New York manufactures oxweld apparatus and supplies.



# Up and Down the Great Lakes

Passenger Traffic Unusually Heavy — Ore Movement Still Off — Lake Levels — Harbor Development at Chicago — More Boats Operating — Mobile Radio Beacon

**S**UMMER passenger traffic on the Great Lakes this season is surprisingly heavy, surpassing even the early season expectations on Memorial day when several lines reported records for early season travel. Estimates now are that 1,500,000 passengers will travel on lake steamers plying Lake Michigan this summer, as compared with less than 1,000,000 in recent years.

The popularity of lake passenger traffic is due in part to the reduction of 20 per cent in passenger fares for the summer by a number of lake passenger steamship lines, and also to the early advent of hot weather in many localities. All lake passenger boats were in service for the season by the Fourth of July. The seven-day cruises have become unusually popular this season, as indicated by bookings. Great Lakes Transit Corp., which has shifted its vessel, TIONESTA, from Buffalo-Duluth service to a route between Chicago and Milwaukee to Buffalo and Niagara Falls, has found the added service meeting a popular response.

Another added service on the lakes is the Chicago-Muskegon run of the Michigan Transit Corp., operating the steamships PURITAN and MANITOU. These boats make early evening trips between Chicago and the Michigan resort. Detroit & Cleveland Navigation Co. opened its schedule on July 2 with the EASTERN STATES and WESTERN STATES plying between Chicago and Detroit by way of St. Ignace and Mackinac Island. Three additional vessels have been placed in service by the Goodrich Transit Co. for the summer season. They are the flag ship, ALABAMA, the CITY OF GRAND RAPIDS and the CITY OF HOLLAND.

The 2000 mile voyages of the NORTH AMERICAN and SOUTH AMERICAN, of the Chicago, Duluth & Georgian Bay Transit Co. also were started early in July. As in recent years, a Tuesday and Thursday schedule from Chicago will touch at Mackinac Island, Georgian Bay, several Canadian points, Detroit, Cleveland and Buffalo.

## Ore Movement Still Off

According to report of the Lake Superior Iron Ore association, July 1, the movement of iron ore from the upper lakes during June dropped 55.98 per cent below the figure for the same month last year.

Shipments for June this year totaled

3,808,043 tons as compared with 8,650,441 tons for the same month a year ago. To July 1 this season, only 5,753,259 tons have been shipped from ports on the upper Lakes as against 15,737,573 tons for the same period in 1930. This figure represents a drop of 63.44 per cent. A comparison between the May and June figures for this year shows that during the latter month, the movement gained over 50 per cent, the figure for May having been 1,769,295.

Movement of ore from Lake Erie docks to interior furnaces is going ahead proportionally to the lake movement. During June 30,409 cars were shipped as compared with 68,412 moved for the month last year.

## June Lake Levels

The United States Lake survey reports the monthly mean stages of the Great Lakes for the month of June as follows:

Lakes	Feet above mean sea level
Superior .....	601.98
Michigan-Huron .....	579.18
St. Clair .....	574.34
Erie .....	571.59
Ontario .....	245.43

Lake Superior was 0.24 foot higher than in May and it was 0.59 foot lower than the June stage of a year ago.

Lakes Michigan-Huron were 0.06 foot higher than in May and they were 1.89 feet lower than the June stage of a year ago.

Lake Erie was 0.13 foot higher than in May and it was 2.18 feet lower than the June stage of a year ago.

Lake Ontario was 0.30 foot higher than in May and it was 2.68 feet lower than the June stage of a year ago, 1.13 feet below the average stage of June of the last ten years.

## Chicago Harbor Development

Lake Calumet, just off Lake Michigan in the South Chicago industrial district, is the best location in that region for barge-to-rail interchange and also is the best location in the Chicago region for future development of large industries receiving or shipping commodities and products by barge, it is found by the Chicago association of commerce, in its plan recently submitted to the new Chicago regional port commission for harbor development at Chicago. The association's report asks for a harbor at Chicago adequate to handle almost any

type of deep-water shipping available.

The plan suggests to the regional port commission the transfer to the United States government of jurisdiction of that portion of Lake Calumet lying south of 122nd street, Chicago, subject to the provision that the federal authorities undertake improvement of this portion of the lake within a period of five years. The report of the association points out that the reclamation of submerged lands in Lake Calumet will afford sites for industries requiring water for industrial purposes only.

## More Boats in Operation

Statistics compiled by the M. A. Hanna Co., Cleveland, indicate that there was a 10 per cent increase in the number of ore carriers in commission on the Lakes between June 10 and July 23. A total of 198 vessels or 60 per cent of the fleet are now in operation. The feeling is that with this percentage of the ore carrying fleet in service there will be some pick up in the movement of ore. However, until conditions improve in the steel industry, it is hardly to be expected that any great increase will result in the lake movement since the demand of interior furnaces determines the amount of ore carried.

On July 10, the Pittsburgh Conneaut Dock Co. set a new all-time record for dumping bituminous coal by loading 152 cars of cargo and fuel coal into the steamer W. B. SCHILLER in three hours and 30 minutes. Loading of the vessel began at 12:00 noon and was completed at 3:30 p.m. A total of 11,793 tons were dumped of which 11,543 tons were cargo and 250 tons fuel coal. The average number of cars dumped per hour was 43. The previous record was established in 1921 by the steamer D. G. KERR.

## Test Mobile Radio Beacon

To determine the practicability of the use of mobile radio beacons on the Great Lakes, a test is being conducted by the United States Lighthouse service which has installed a piece of this equipment on the steamer JAMES MACNAUGHTON. The radio transmitter is capable of sending signals at a frequency of 484 kilocycles. Radio-compasses on other vessels are able to pick up these signals.

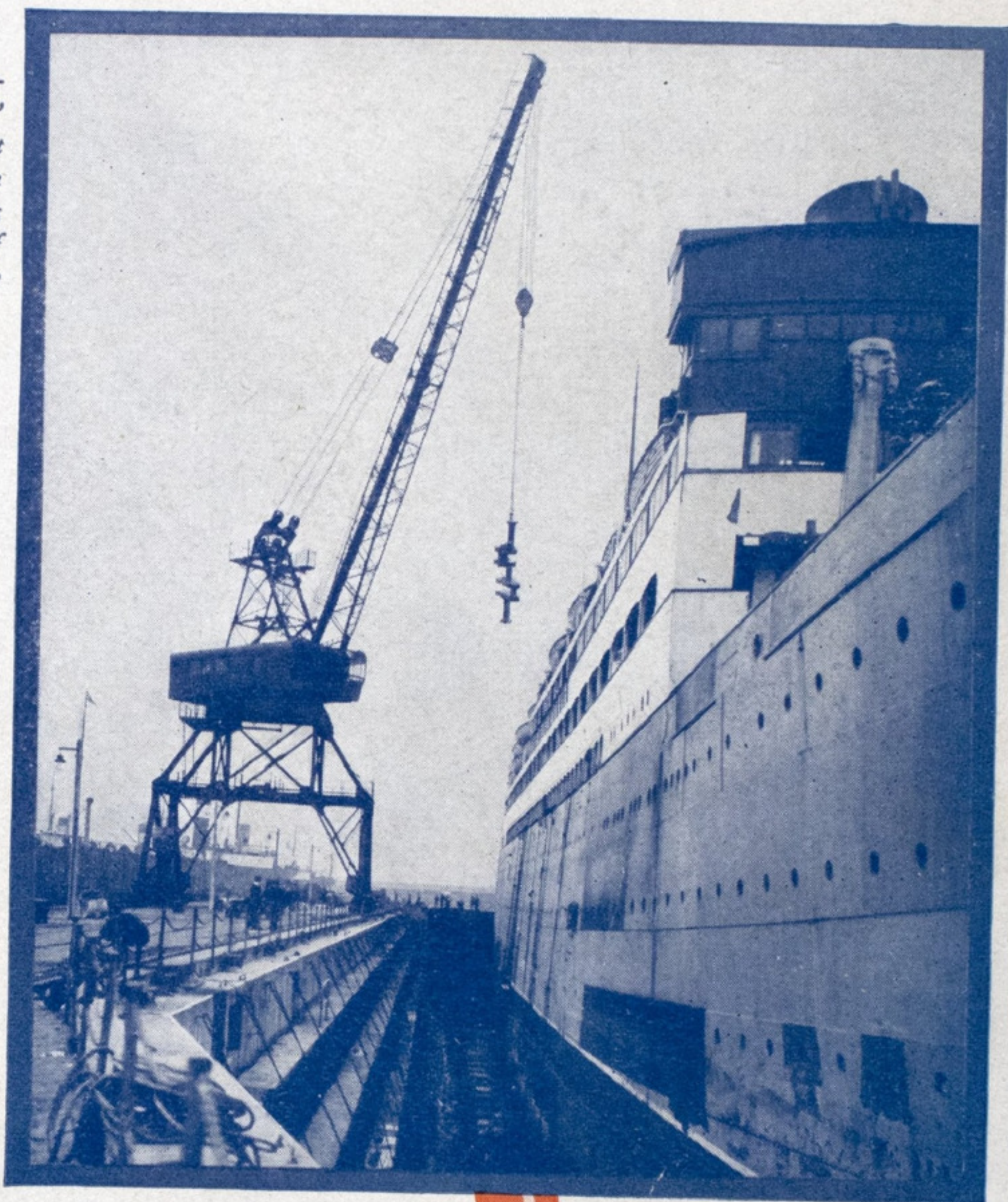


# Marine Review

The National Publication Covering the Business of  
Transportation by Water

August, 1931

15-ton section of the Norwegian America Line's S. S. "Stravangersford's" 30-ton crank-shaft being lifted out of the engine room by the new 20-ton Gantry crane between Graving Docks No. 1 and No. 2, Robins Plant of Todd Shipyards Corporation, Erie Basin, Brooklyn, N. Y.



## TODD Service is a Standard of Service

Owners and operators have come to know that the unexcelled facilities of Todd, strategically located on all coastlines of the United States, bespeak a quality—a standard—of service that meets every demand of modern marine requirements in conversion, repair and reconditioning.

To the already wide reach of Todd Service is added all necessary equipment at each Yard to meet the needs of quick voyage repair and emergency repair with minimum interruption to sailing schedules, arrivals, etc.

24 Floating Dry Docks • 2 Graving Docks • 3 Shipways

Todd Unit System of Burning Pulverized Fuel

Todd Fuel Oil Burning Systems

TODD SHIPYARDS CORPORATION, 25 Broadway, New York

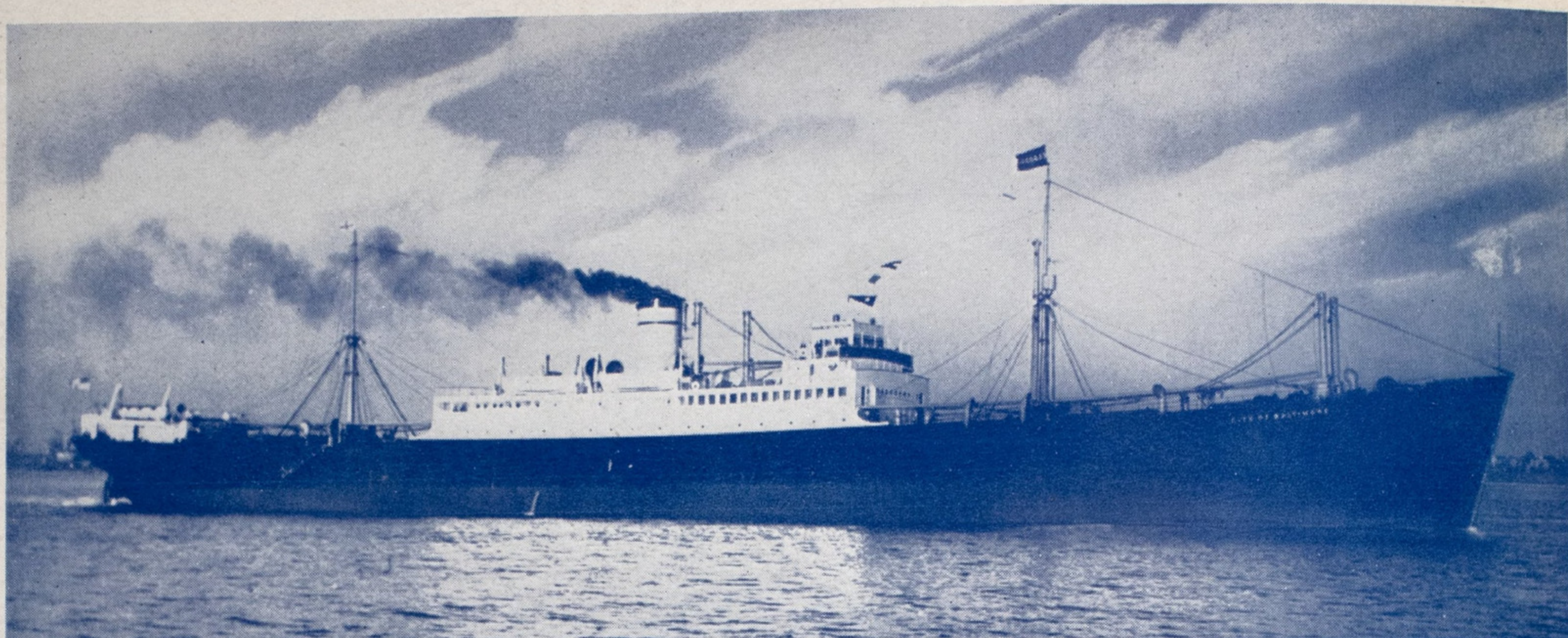
### PLANTS

Robins Dry Dock & Repair Company  
Erie Basin, Brooklyn, N. Y.  
Todd Dry Dock Engineering  
& Repair Corporation  
Brooklyn, N. Y.  
Tietjen & Lang Dry Dock Company  
Hoboken, N. J.  
Todd Shipbuilding & Dry Dock  
Company, Inc.  
Mobile, Ala.  
Todd Engineering Dry Dock  
& Repair Company, Inc.  
New Orleans, La.  
Todd Dry Docks, Inc.  
Harbor Island, Seattle, Wash.  
Todd Oil Burners, Limited  
London, England

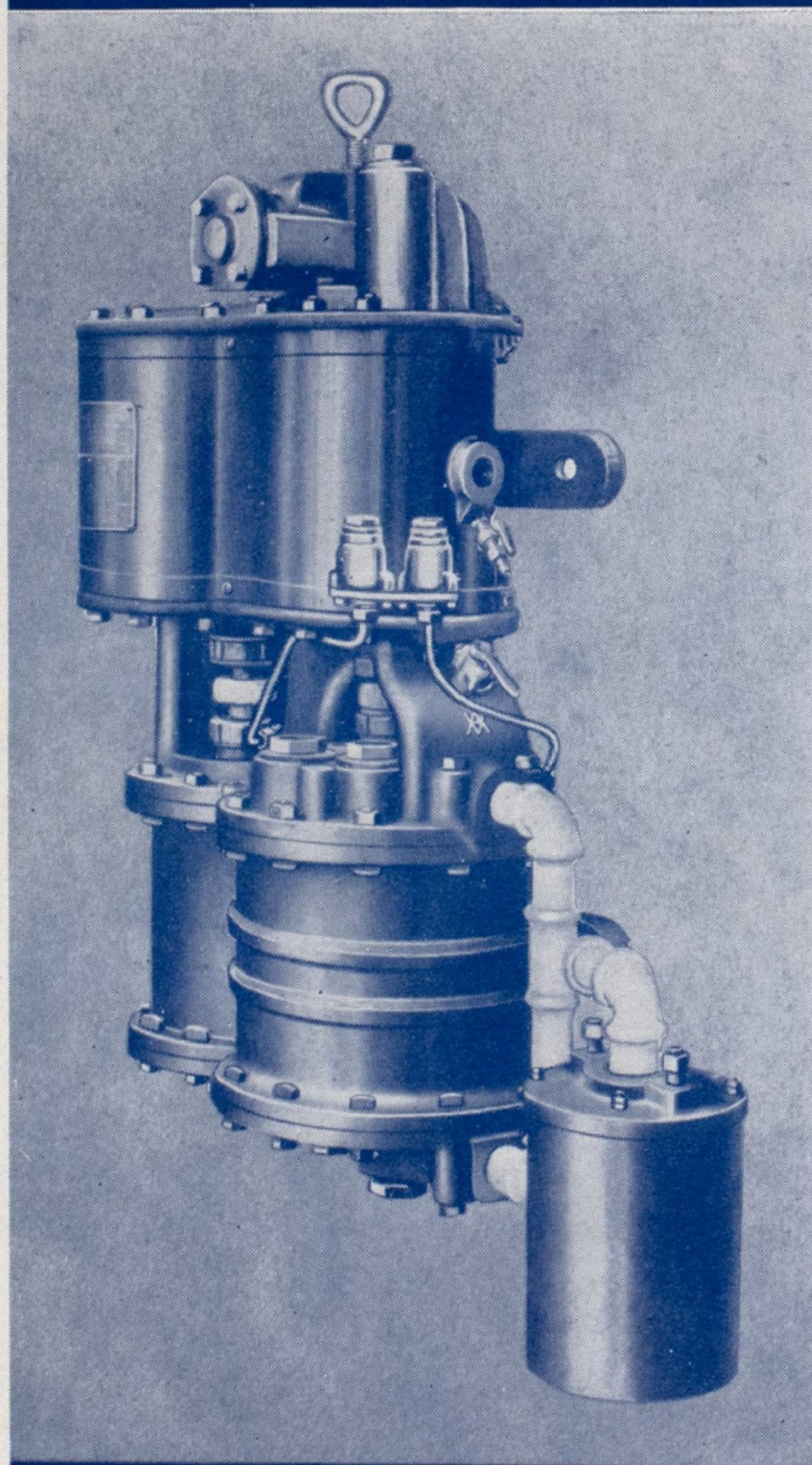
**LARGEST  
DRY DOCK**  
in  
**NEW YORK  
HARBOR**







## Keeping the S.S. City of Baltimore Shipshape



**WESTINGHOUSE-  
NATIONAL  
Air Compressors**

◀ **“Quality Machines  
for Quality Service”** ▶

**V**ESSELS of the Baltimore Mail Steamship Company can be kept shipshape on their long voyage to European ports because they are equipped with Westinghouse air compressors and complete sets of pneumatic scaling hammers.

Obviously the plates of a steel ship must be cleaned and painted at frequent intervals if serious corrosion is to be prevented. The old practice of removing scale with a hand chisel and applying paint with a brush has been superseded by the compressed air method—it's quicker and better. With a source of compressed air aboard ship there is no need to postpone unduly the required care of a sea going vessel.

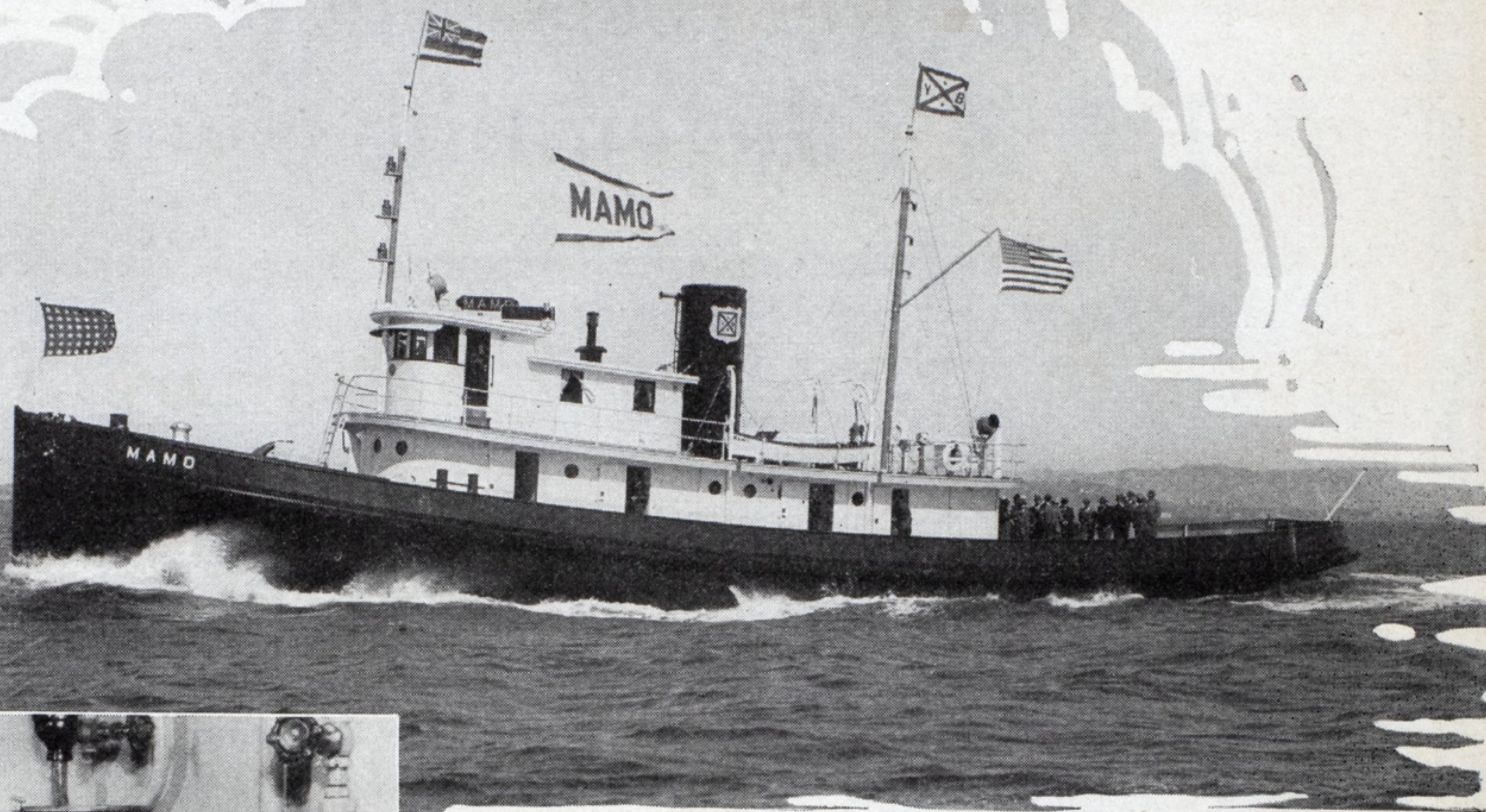
Each of the five ships of the Baltimore Mail Steamship Company has a Westinghouse 8½" cross compound steam driven compressor of 150 cu. ft. displacement that supplies air not only for chipping hammers and paint sprayers but for a variety of pneumatic tools used in maintenance work, for air turbines to clean boiler tubes, and for forcing fresh water to various parts of the vessel.

Westinghouse-National air compressors are available in many types and sizes ranging from 2½ to 700 cu. ft. displacement, either steam driven or motor driven, and suitable for every conceivable requirement in marine service.

**WESTINGHOUSE TRACTION BRAKE CO.**  
Industrial Division - Pittsburgh, Pa.  
(9099)



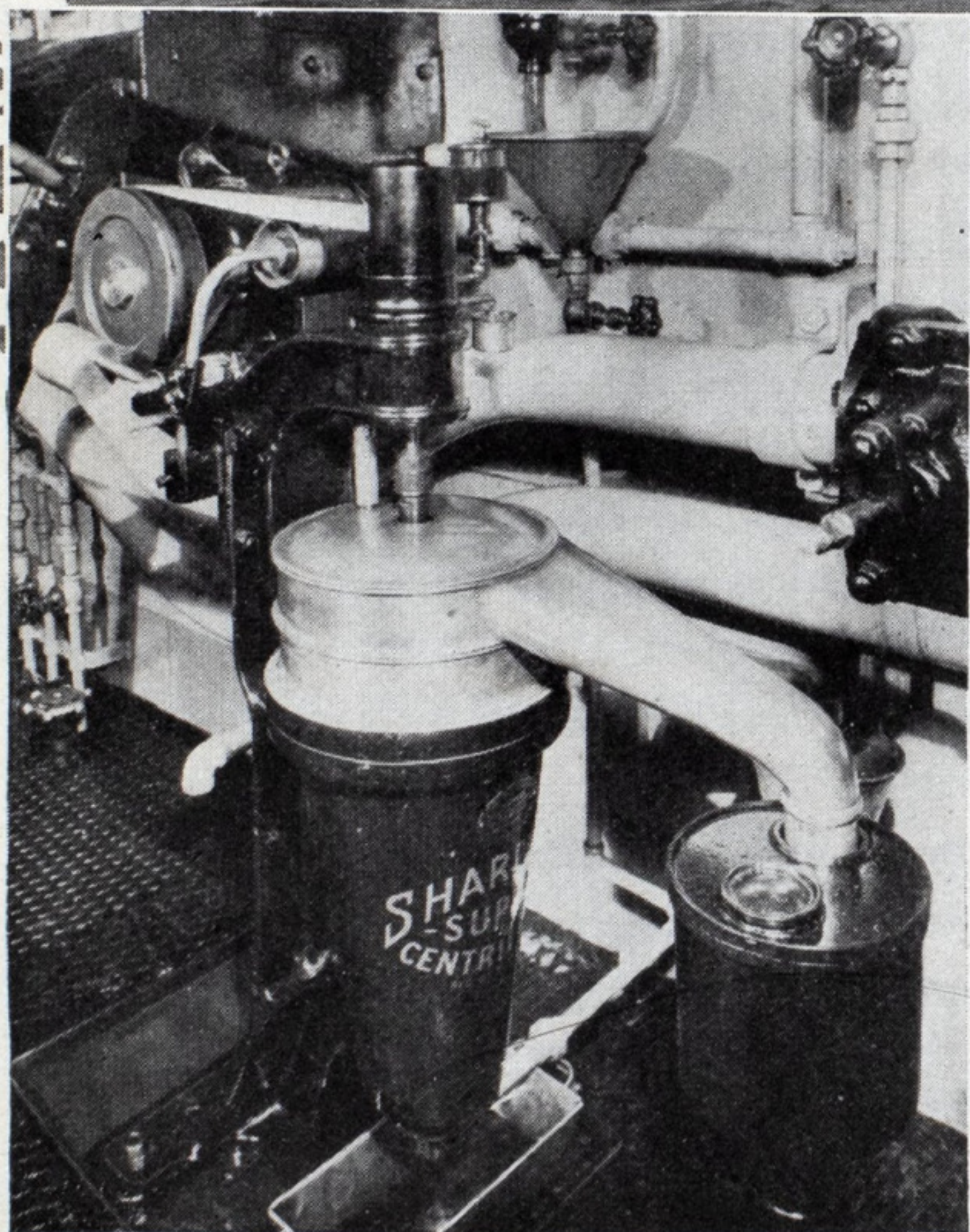
# Another record is broken with **SHARPLES** Protection aboard



## The World's Largest Diesel Tug "MAMO"

recently hung up a new world's record for long-distance towing. The "MAMO", owned by Young Brothers of Honolulu, and powered by two 750 H.P. Fairbanks Morse Engines, completed its record-breaking tow from San Francisco to Honolulu — a distance of 2100 miles — in 10 days, 15 hours.

Long, hard pulls like this naturally call for every protection against failure—and a Sharples Oil Purifier in the engine room of the "MAMO" kept the Diesels supplied with clean, safe oil, minimizing the danger of worn bearings, valve troubles and shut-downs.



THE SHARPLES SPECIALTY COMPANY, 2338 WESTMORELAND STREET, PHILADELPHIA. Boston, New York, Pittsburgh, Chicago, Detroit, Tulsa, New Orleans, San Francisco, Seattle, Los Angeles. Factories in England and France.

# SHARPLES

CENTRIFUGAL ENGINEERS • • PHILADELPHIA



# Cutting costs—where the cutting counts

Modern engines are a big investment. Repairs, replacements and depreciation run into real money. Fuel and oil consumption is a sizable expense item.

When engine room costs come too high, look to lubrication. Marine experts agree that a great deal of engine trouble and maintenance expense could easily be avoided. It is due directly to the use of unsuitable oils.

Gargoyle Marine Oils may not cut your costs in half. They may not even knock off all that extra expense the engineers talk about. But they do show rather remarkable performance records in most of the world's larger ships. Fewer repairs, substantial savings in fuel and oil consumed, longer engine life, tell the story in dollars and cents.

Manufacturing experience explains it—65 years of specialization in scientific lubrication. Every grade of Gargoyle Marine Oils is *made to fit* a particular type of service.

You'll find these economy lubricants on sale in more than 300 of the world's leading ports. Our representatives in every port are thoroughly familiar with the lubrication requirements of marine engines. A talk with one of these men is usually worth while.

We shall be glad to send you either of these valuable books without any obligation: "*Steamships with Reciprocating Engines*," "*Marine Lubrication—Motorships*." Address Vacuum Oil Company, Marine Sales Department D-8, 61 Broadway, New York City.



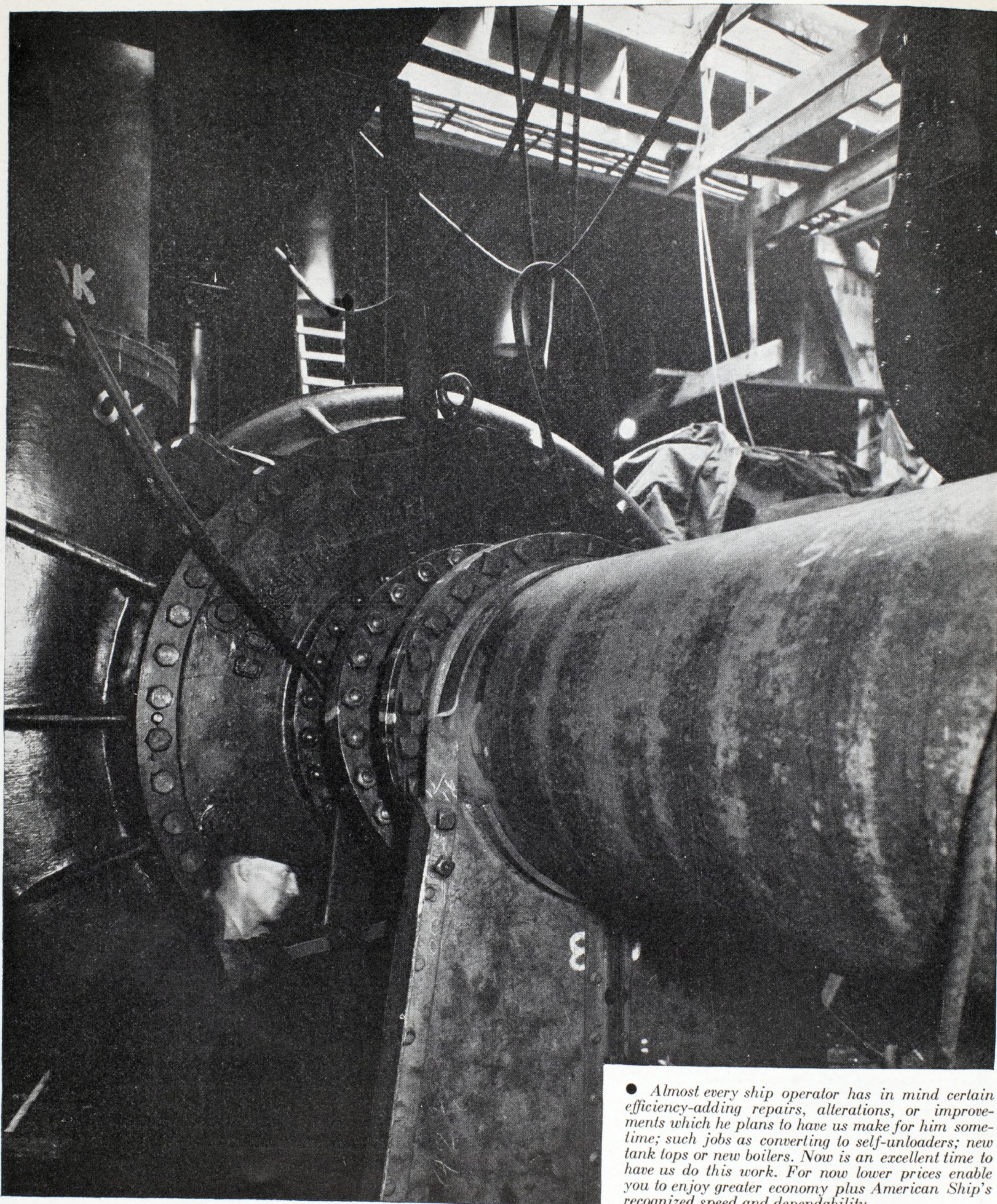
**Marine Oils**

A grade for each  
type of service

# VACUUM OIL COMPANY







● Almost every ship operator has in mind certain efficiency-adding repairs, alterations, or improvements which he plans to have us make for him sometime; such jobs as converting to self-unloaders; new tank tops or new boilers. Now is an excellent time to have us do this work. For now lower prices enable you to enjoy greater economy plus American Ship's recognized speed and dependability.

# *The* AMERICAN

CLEVELAND  
American Ship  
Building Co.

LORAIN  
American Ship  
Building Co.

BUFFALO  
Buffalo Dry Dock  
Company



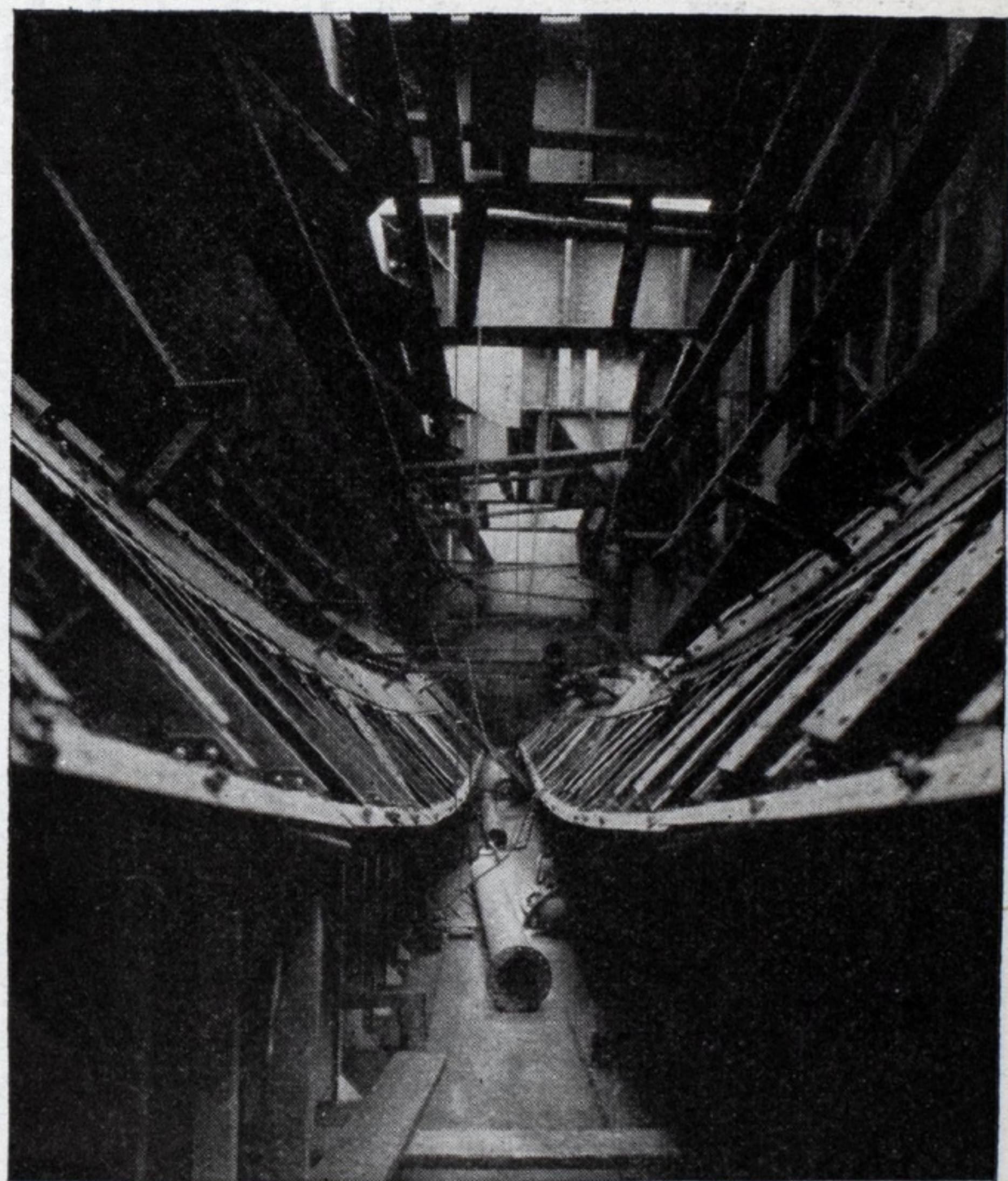
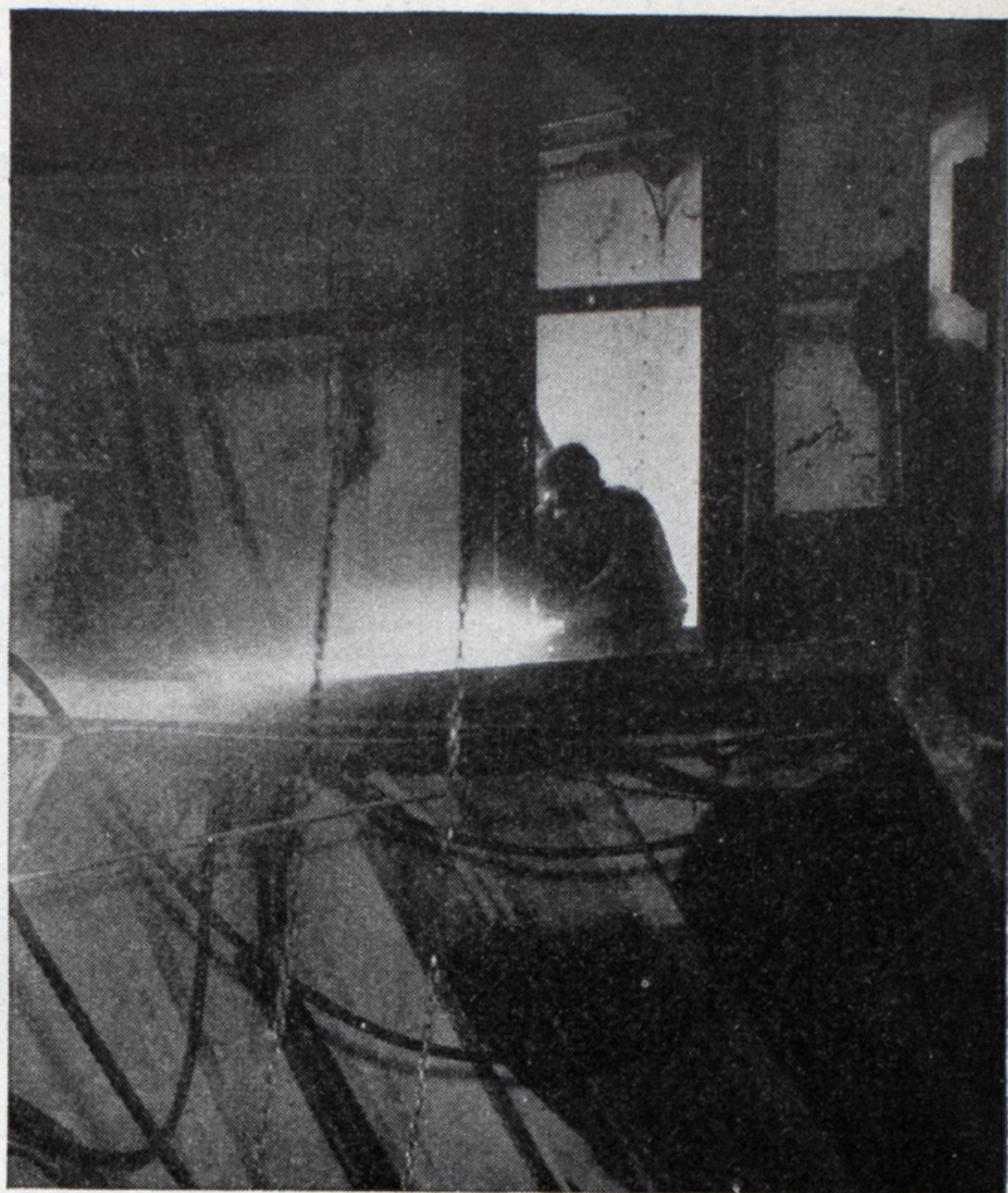
# You couldn't PICK a better time *for* ship repairs...and improvements

• IT is a fact that this is a particularly good time to have ship repairs, alterations, improvements made. This is why:

- 1 Raw materials are low in price.
- 2 Labor is more efficient; you get a better job for your money.
- 3 You get the job done quicker.
- 4 And, because shipments are light, now, you can have us make these repairs and alterations without interfering with your schedules.

Surely it is common sense to take advantage of these conditions. Then when business comes back—not with a rush—but, as it always does, here a little and there a little—your ships will be ready; and you will have made them ready at lowest cost.

Have one of American Ship's five convenient, completely equipped shipyards start on your work now, that you may get it done swiftly, dependably and economically.



# SHIP BUILDING<sup>CO</sup>

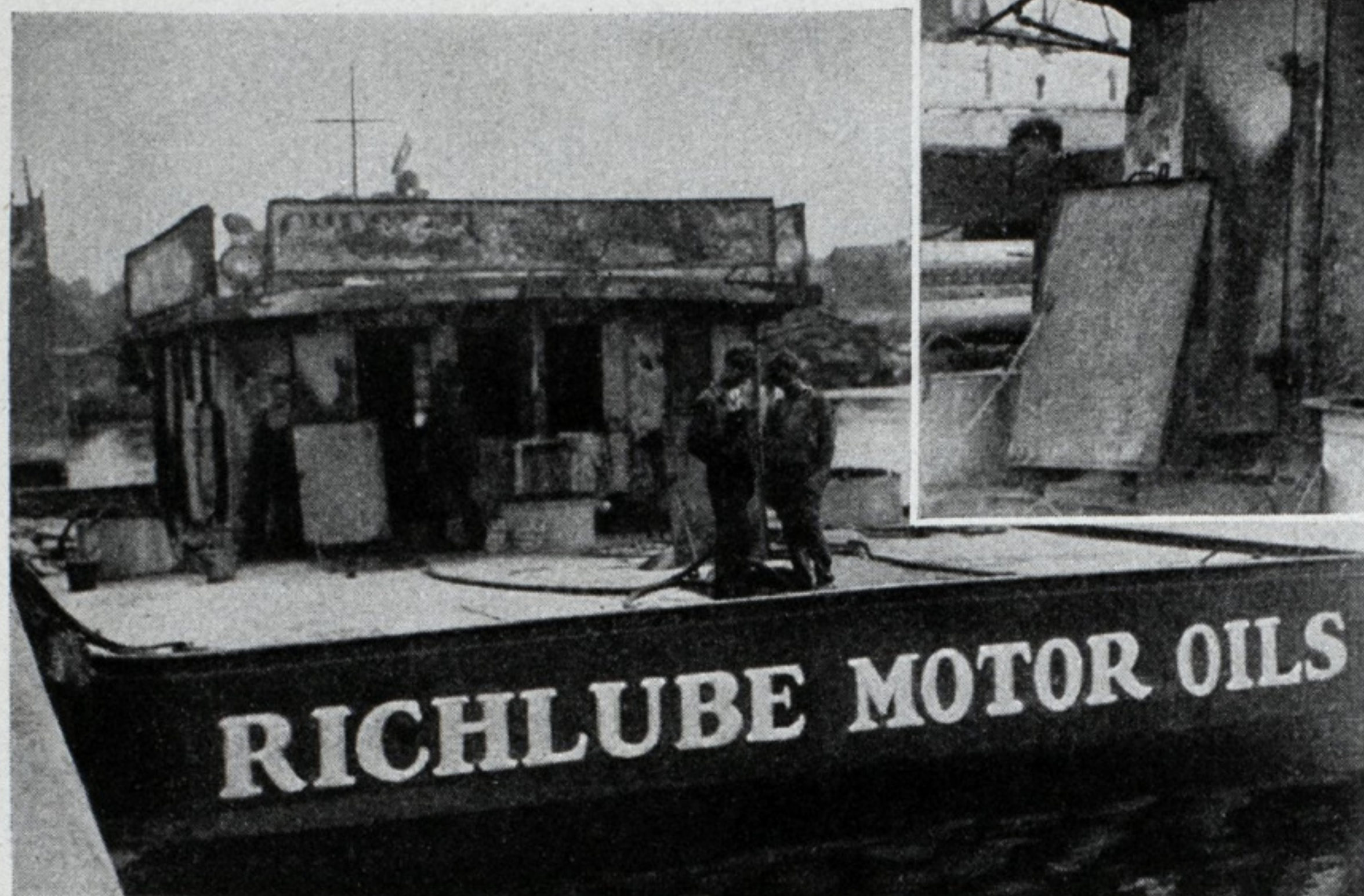
SOUTH CHICAGO  
Chicago Ship  
Building Co.

SUPERIOR  
Superior Ship-  
building Co.





30 minutes fire wrecked the steel house on this Truss-Weld Barge, but—



20,000 gallons of gasoline and 10,000 gallons of Diesel Oil were perfectly protected by the "bottle-tight" hull

## Fire . . . Superstructure Destroyed . . . Truss-Weld Hull and Cargo Safe!

Truss-Weld construction recently gave remarkable proof of its "bottle-tightness" when the Richfield Oil Company's Floating Filling Station, anchored off City Island, New York, caught fire in the house and burned furiously for more than thirty minutes.

This novel craft, familiar to all who attended the principal regattas last year and to yachtsmen of the eastern seaboard, carried 20,000 gallons of gasoline and 10,000 gallons of Diesel oil in her tanks and, though the fire wrecked the steel superstructure so badly that it will have to be removed and built anew, the tank cargo was perfectly protected and there was no fire or explosion of any kind from that source.

What would have been the result had this conflagration occurred on an ordinary barge is, of course, open to conjecture, but it is apparent that the arc-welded lap joints of the Truss-Weld system add still another proved qualification, perfect tightness, to the long Truss-Weld list.

Since the first Truss-Weld barges were built, about three years ago, more than a dozen hulls, ranging in length up to 160 feet, have been placed in various types of strenuous service as oil barges, derrick barges, pile drivers, sand scows, deck scows and the like. These have been battered by dredge buckets, squeezed against wharves by larger vessels, have withstood collisions, groundings while loaded, and nearly every kind of marine mishap, without a single instance of hull fracture.

Truss-Weld barges not only meet every sort of service test, ordinary or extraordinary, but in comparison with the usual construction, although lighter, they are stronger; although they draw less water, they hold more cargo. Why not let us show you how you will save on repair and maintenance costs, with Truss-Weld barges?



11 Broadway, N. Y.  
Telephone  
Digby 4-0500

# UNITED DRY DOCKS

Morse-Fletcher  
Staten Island  
Crane Plants

INCORPORATED

Sole Licensee, Atlantic Seaboard, Kjekstad Patent Truss-Weld and Reverse-Channel Systems.

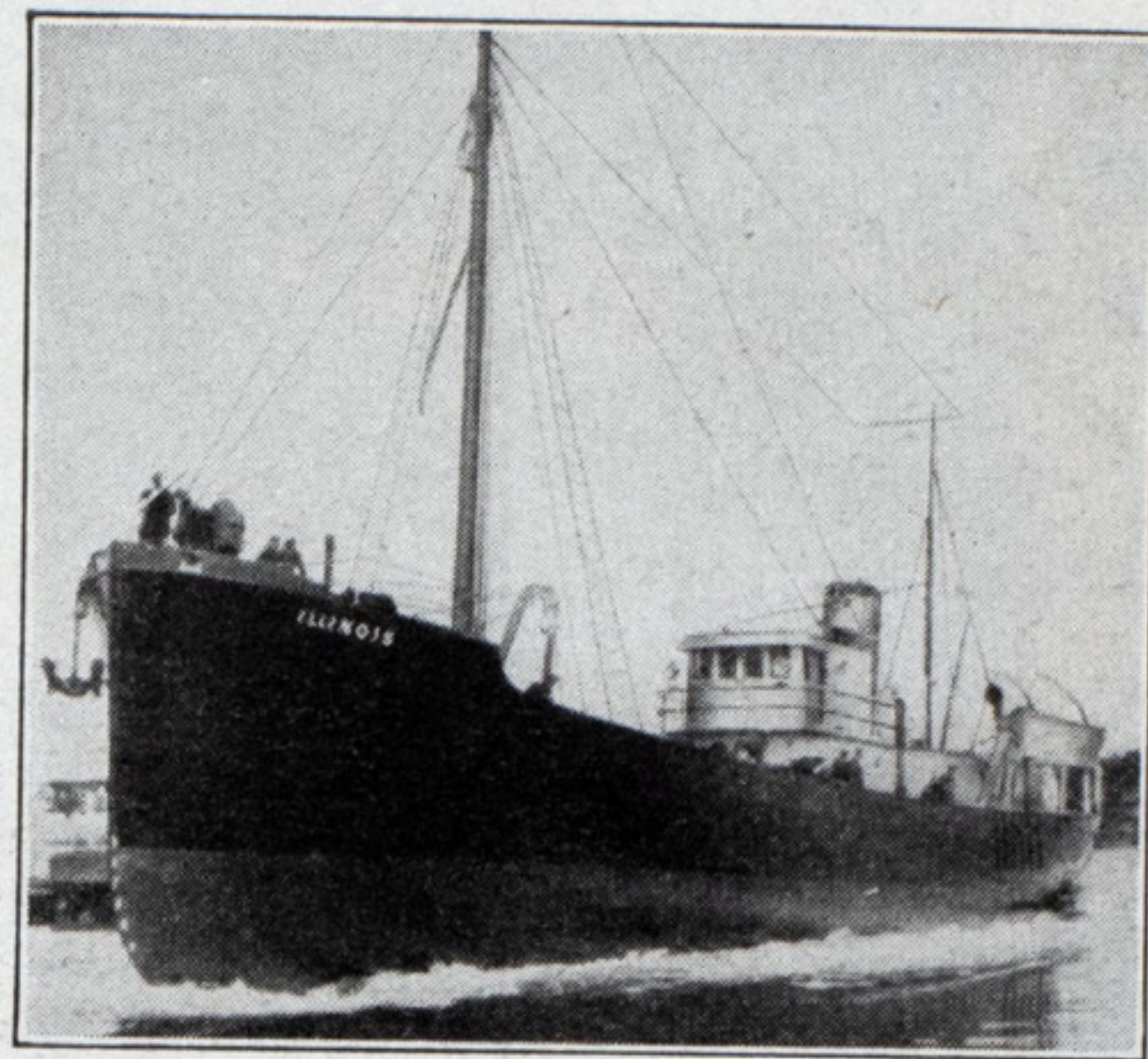


# F·M Diesel sisterships are outstanding examples of modern trawler construction

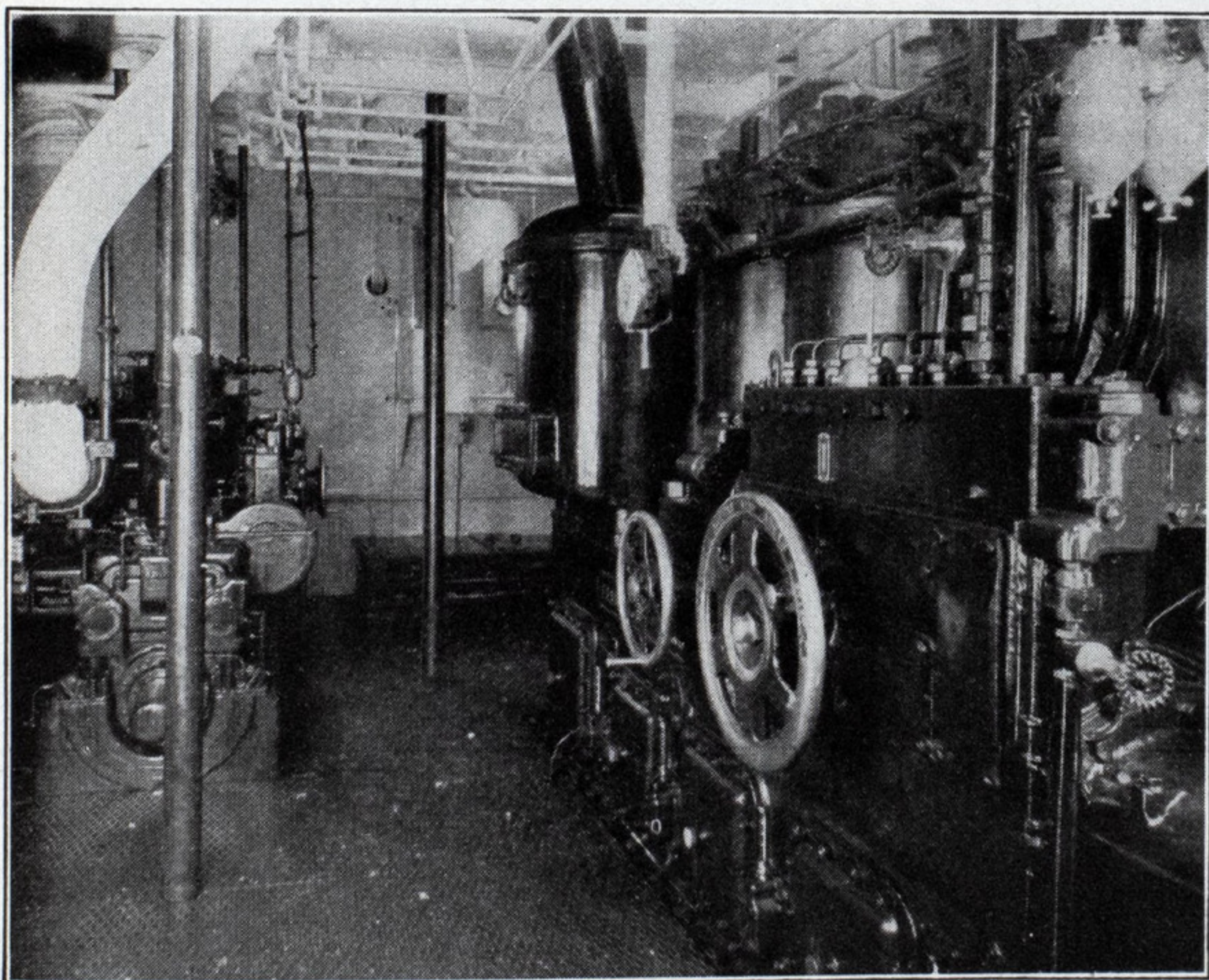
Changing production methods in the fishing industry have called for larger, faster, more economically operated vessels. How well these needs have been filled by designers and builders is evident from an inspection of the vessels that leave the ways on both coasts.

The sisterships "Illinois" and "Maine" are noteworthy examples of modern trawler construction. These boats—identical in design and equipment—were built by the Bath Iron Works of Bath, Me., for the Red

Diamond Trawling Co., a subsidiary of the Booth Fisheries Co. Each vessel is powered with a 550 hp. Fairbanks-Morse Diesel engine and is capable of developing 11½ knots at 260 r.p.m. Auxiliary equipment includes two F-M Diesel generating units (30 and 120 h.p.), F-M pumps and F-M ball bearing motors.



*The new Red Diamond Trawler "Illinois" leaving the ways at the Bath Iron Works. The "Maine", a sistership of the "Illinois", was launched a short time later for the same owners.*



*Control side of the main propelling engine of the "Illinois"—a 6-cylinder, 550 hp. pump-scavenging Fairbanks-Morse Diesel. An identical unit is installed in the "Maine."*

With a remarkable combination of extremely low operating costs, adequate speed, greatly extended cruising radius and increased ratio of cargo space to net tonnage, these vessels can be depended upon to establish a most gratifying record of success.

**FAIRBANKS, MORSE & CO.**  
900 S. Wabash Ave., Chicago  
*Branches with service stations in principal ports*



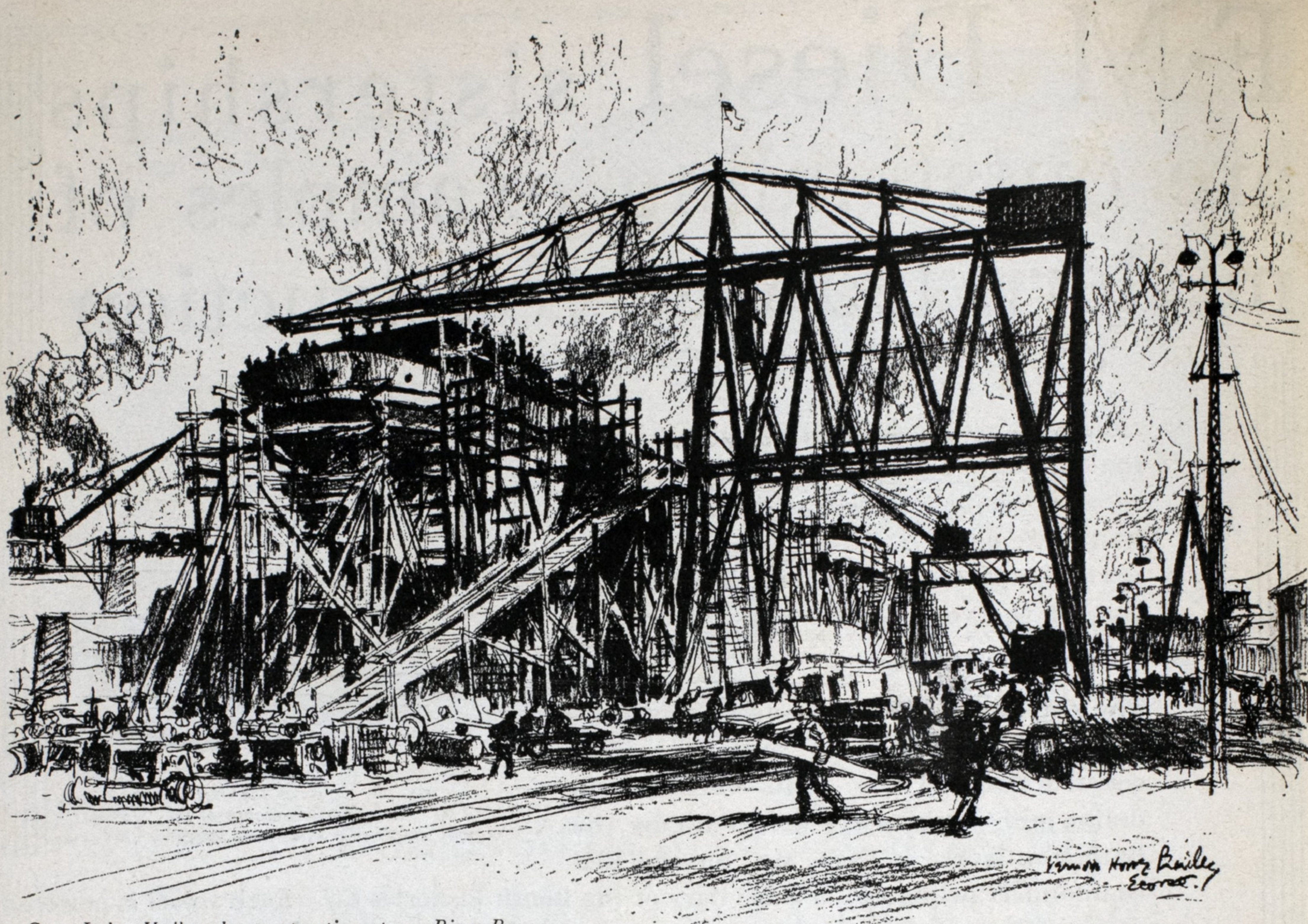
## FAIRBANKS-MORSE

*diesel engines*

POWER, PUMPING AND WEIGHING EQUIPMENT

5546-OA27.360





Great Lakes Hull under construction at our River Rouge Yard. From an etching by Vernon Howe Bailey.

*Hull construction*

# HIGHEST STANDARDS

of workmanship, engineering and service are ever apparent in Great Lakes built ships and engines—and repairs.

## GREAT LAKES ENGINEERING WORKS

Engine Works Equipped  
For General Heavy  
Machine and Foundry  
Work  
Detroit, Mich.

Shipbuilders and Engineers  
General Offices

River Rouge, Michigan  
Cleveland Office: Union Trust Bldg.

Complete Shipbuilding  
Dry Dock and Repair  
Facilities  
River Rouge, Mich., and  
Ashtabula, Ohio



# The New Dollar Liners . . .



THE  
**BABCOCK & WILCOX**  
85 LIBERTY ST. **COMPANY** NEW YORK, N. Y.



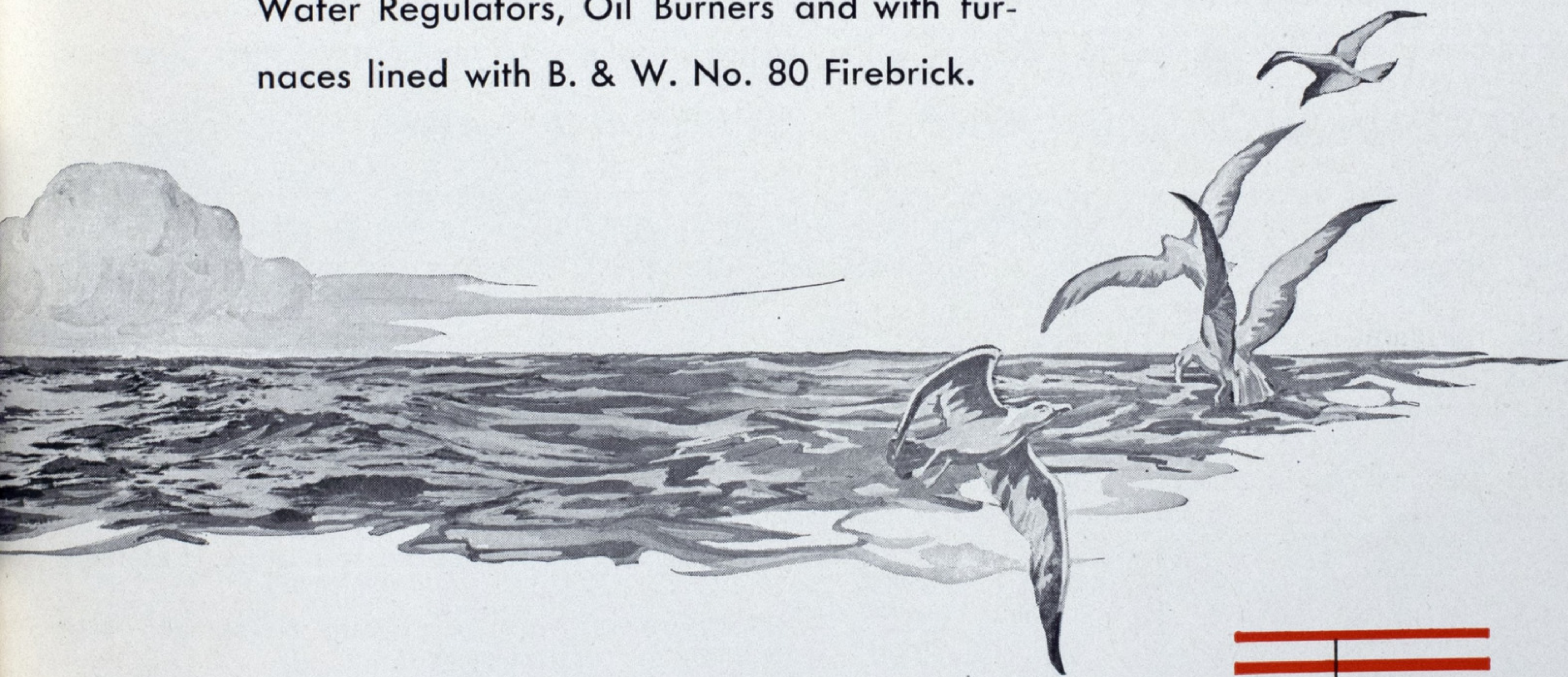
# and Modern Steam

**T**HE new Dollar Liners . . . S. S. President Hoover and S. S. President Coolidge . . . designed and equipped to provide luxurious travel with comfort, safety, and speed in Trans-Pacific service will be propelled by Modern Steam.

Operating economy is assured through the use of steam at 300 pounds pressure and 200° F. superheat from Babcock & Wilcox Marine Water-tube Boilers equipped with B. & W. Superheaters, De-superheaters, Feed Water Regulators, Oil Burners and with furnaces lined with B. & W. No. 80 Firebrick.

## BABCOCK & WILCOX Marine Products

Water Tube Boilers  
Air Preheaters  
Superheaters  
Economizers  
Stokers  
Oil Burners  
Refractories  
Oil Separators

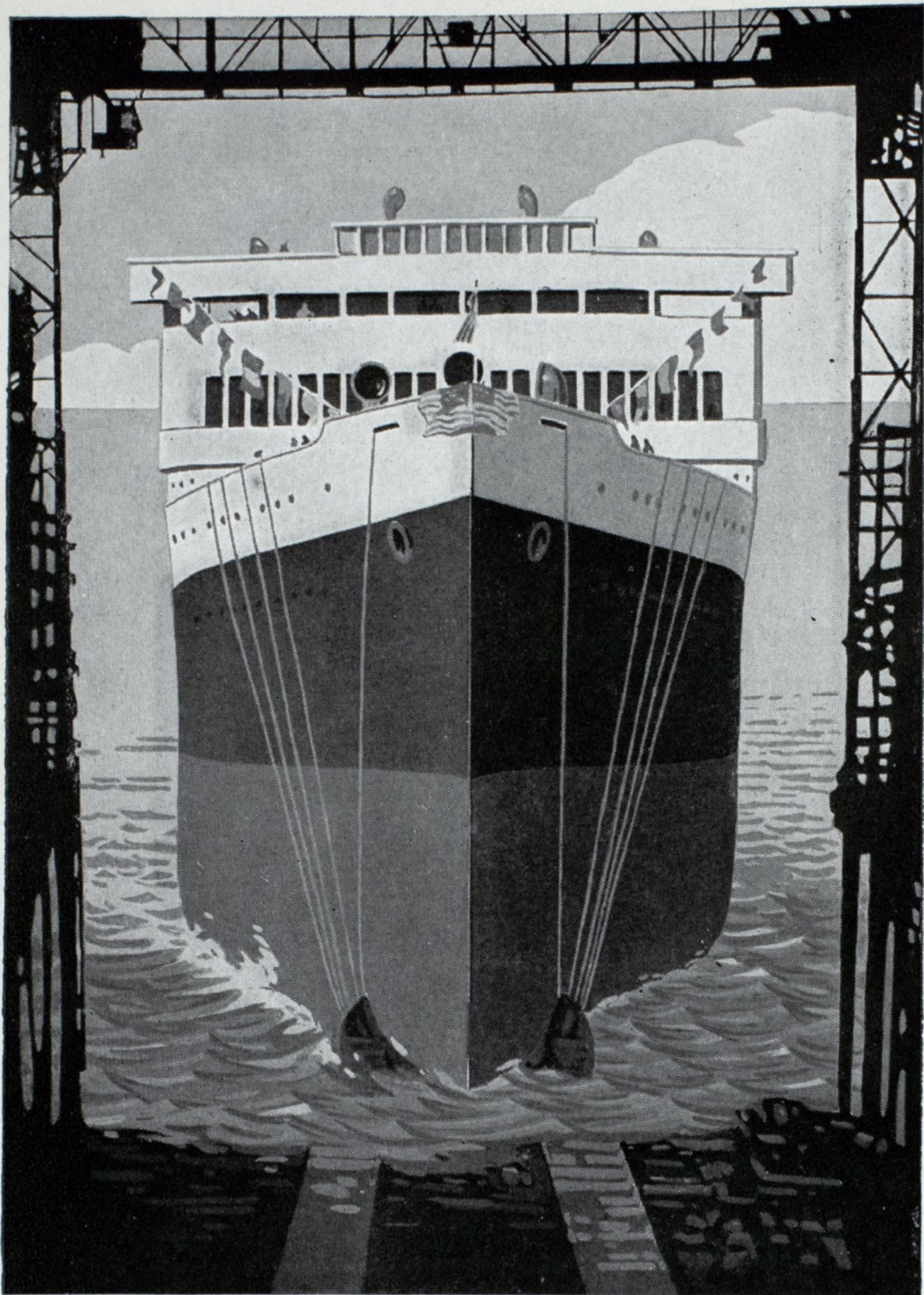


THE  
**BABCOCK & WILCOX**  
85 LIBERTY ST. **COMPANY** NEW YORK, N. Y.



M5





# FROM NEW YORK TO CHINA THE ALL-ELECTRIC WAY

FROM New York to San Francisco, Honolulu, Japan, China, Manila — and return — every mile made smooth beyond compare by turbine-electric drive — every auxiliary operated by electric power — all the comfort and

convenience of electric devices in stateroom, galley, engine room, and on the bridge. — These are among the advantages of the first all-electric ship built in America for transoceanic service — the *President Hoover*, recently put in service by the Dollar Line. This twin-screw ship, more than 600 feet long, accommodates 450 passengers, and provides more than 600,000 cubic feet of storage, besides ample refrigeration space for perishable freight. — The decision to employ electric drive was made after thorough study and investigation and in coöperation with marine engineers of General Electric. Their practical experience is at your service whether your needs call for turbine-gear, turbine-

electric, or Diesel-electric drive. Let them show you the economic advantages that invariably accompany a change to modern types of propulsion.

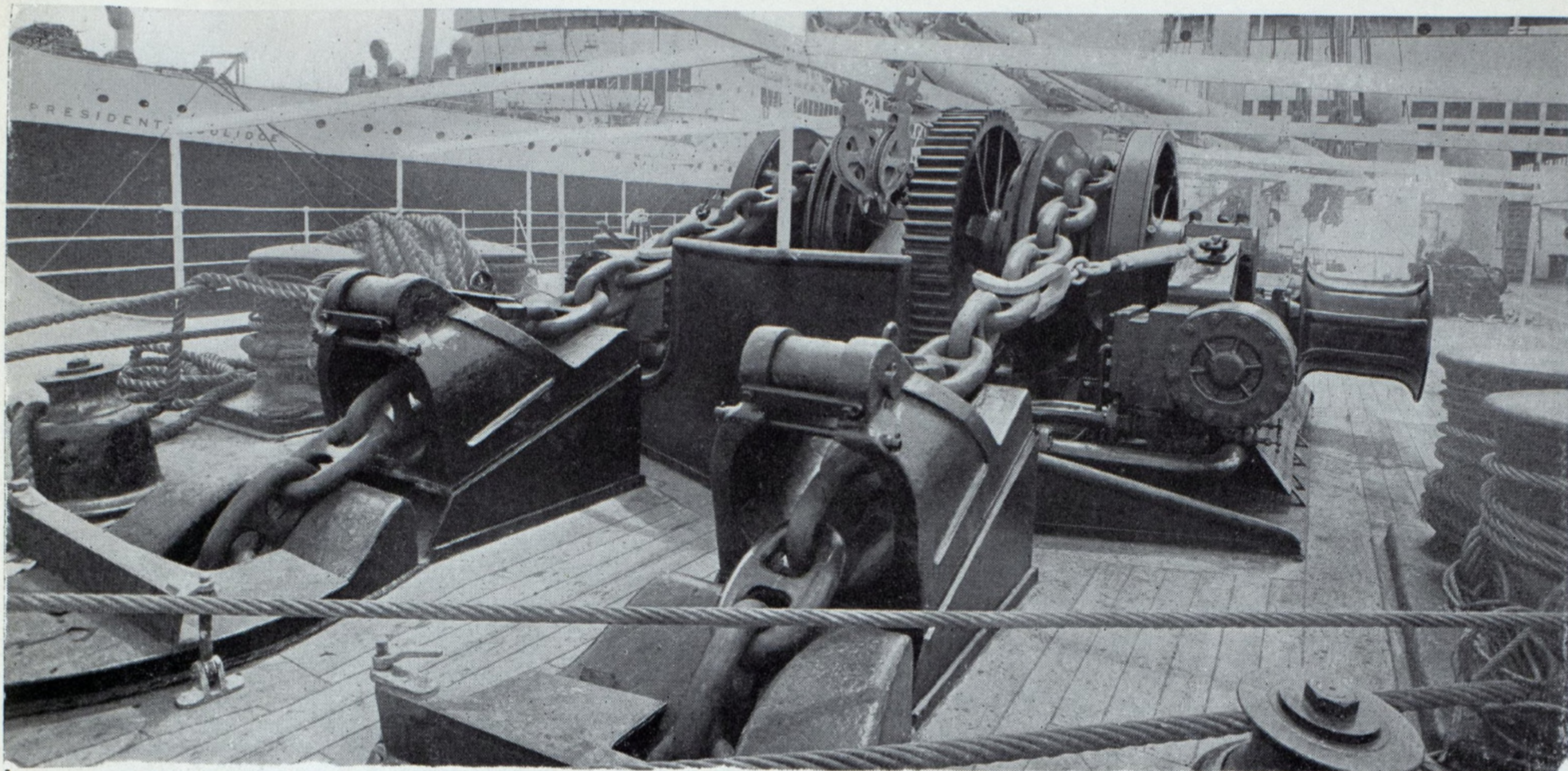


## GENERAL ELECTRIC MARINE EQUIPMENT

JOIN US IN THE GENERAL ELECTRIC PROGRAM,  
BROADCAST EVERY SATURDAY EVENING ON A  
NATION-WIDE N.B.C. NETWORK

173-19





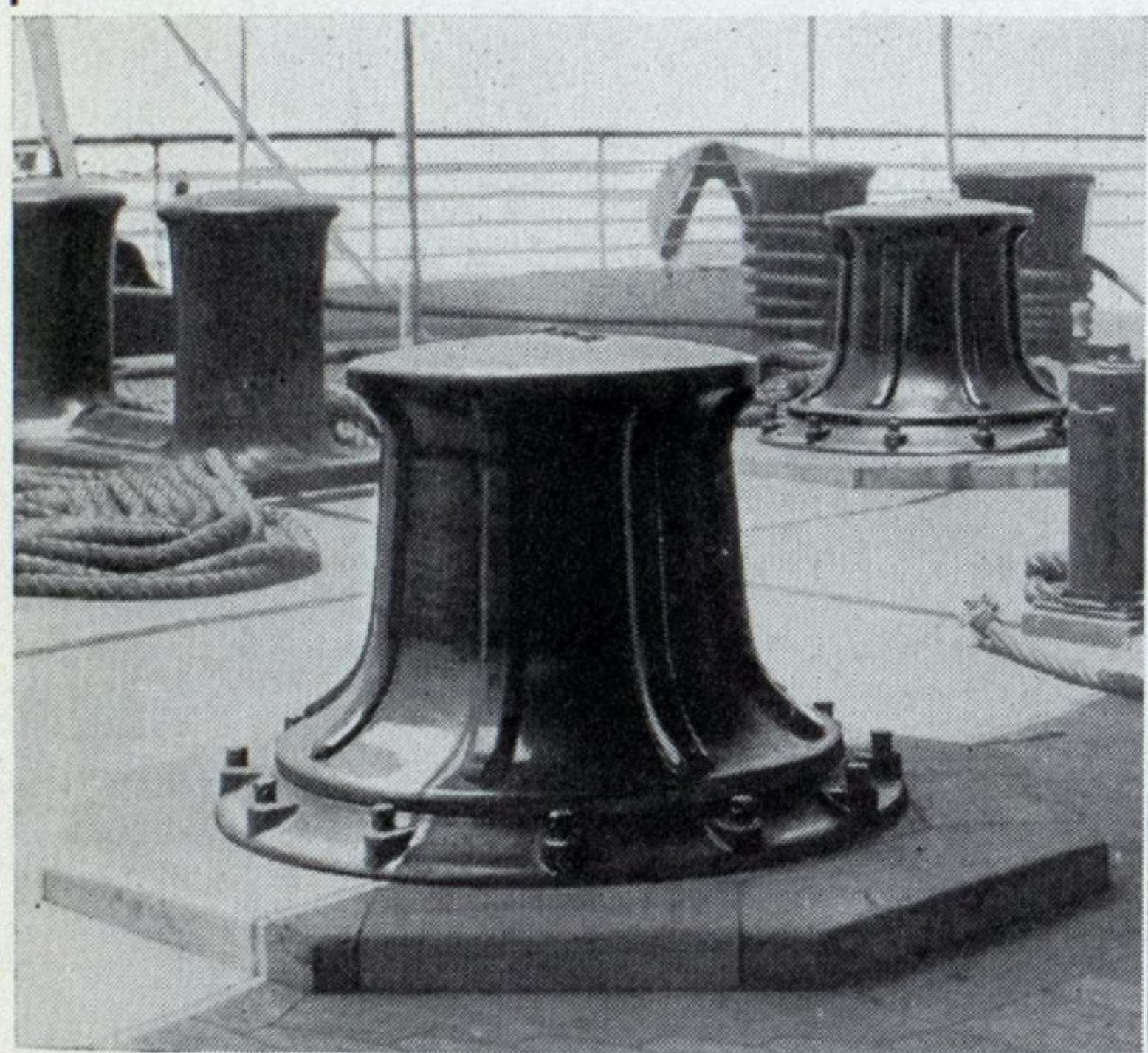
*A-E-CO steam windlass on the President Hoover. A similar windlass can be seen on the President Coolidge in the background.*

## *On the 'President Hoover' and the 'President Coolidge'*

# **A-E-CO AUXILIARIES**

When naval architects select equipment for their outstanding ships they turn naturally to A-E-CO Auxiliaries. Architects and vessel owners rely upon the proved dependability of these machines . . . like their space-saving compactness . . . know that their efficiency means economical operation.

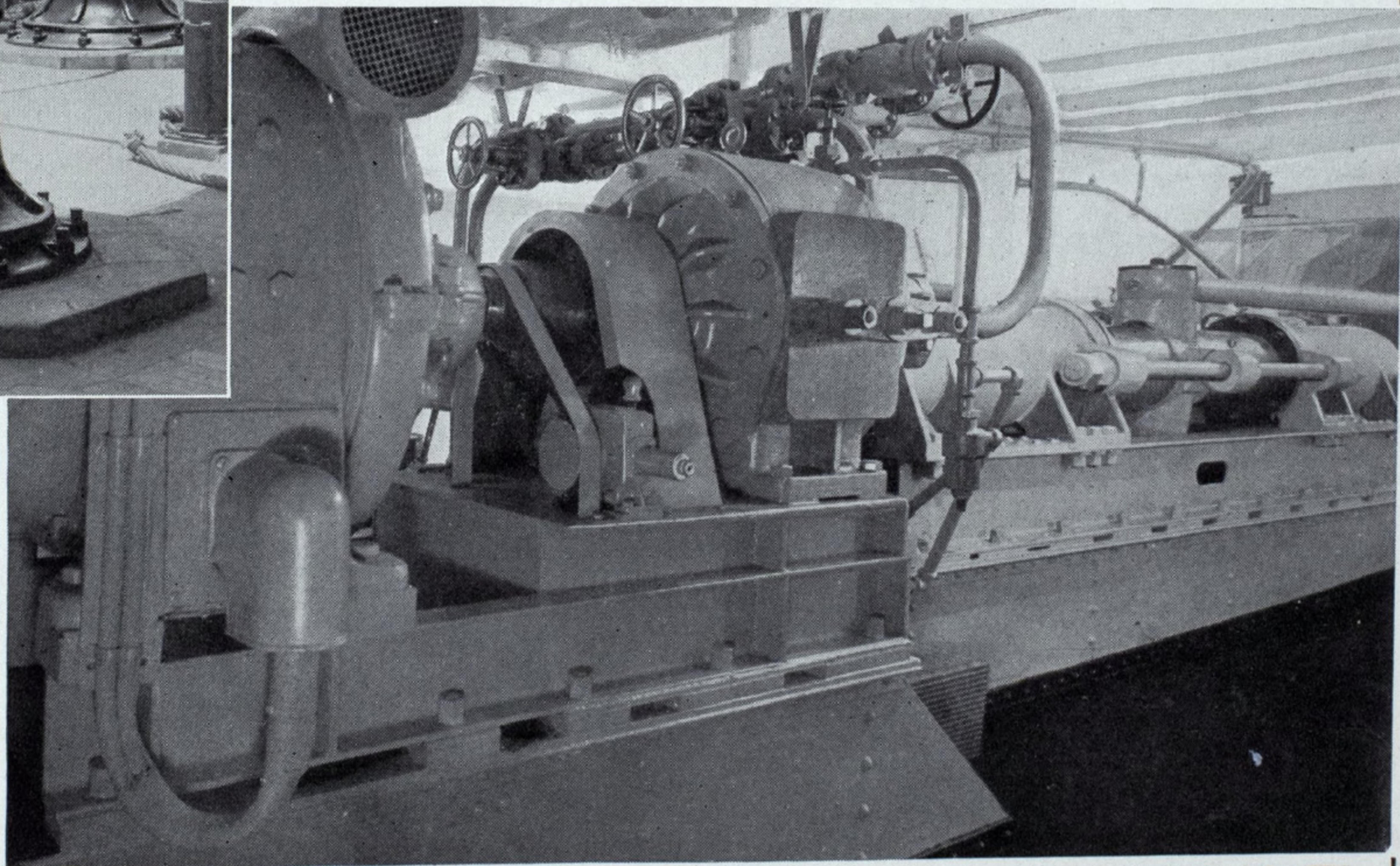
The selection of A-E-CO electro-hydraulic steerers, windlasses and capstans for the President Hoover and the President Coolidge is just one more testimonial to the worth of the A-E-CO line.



*Above: A-E-CO steam capstans on the President Hoover.*

*At right: A-E-CO electro-hydraulic steerer on the President Hoover.*

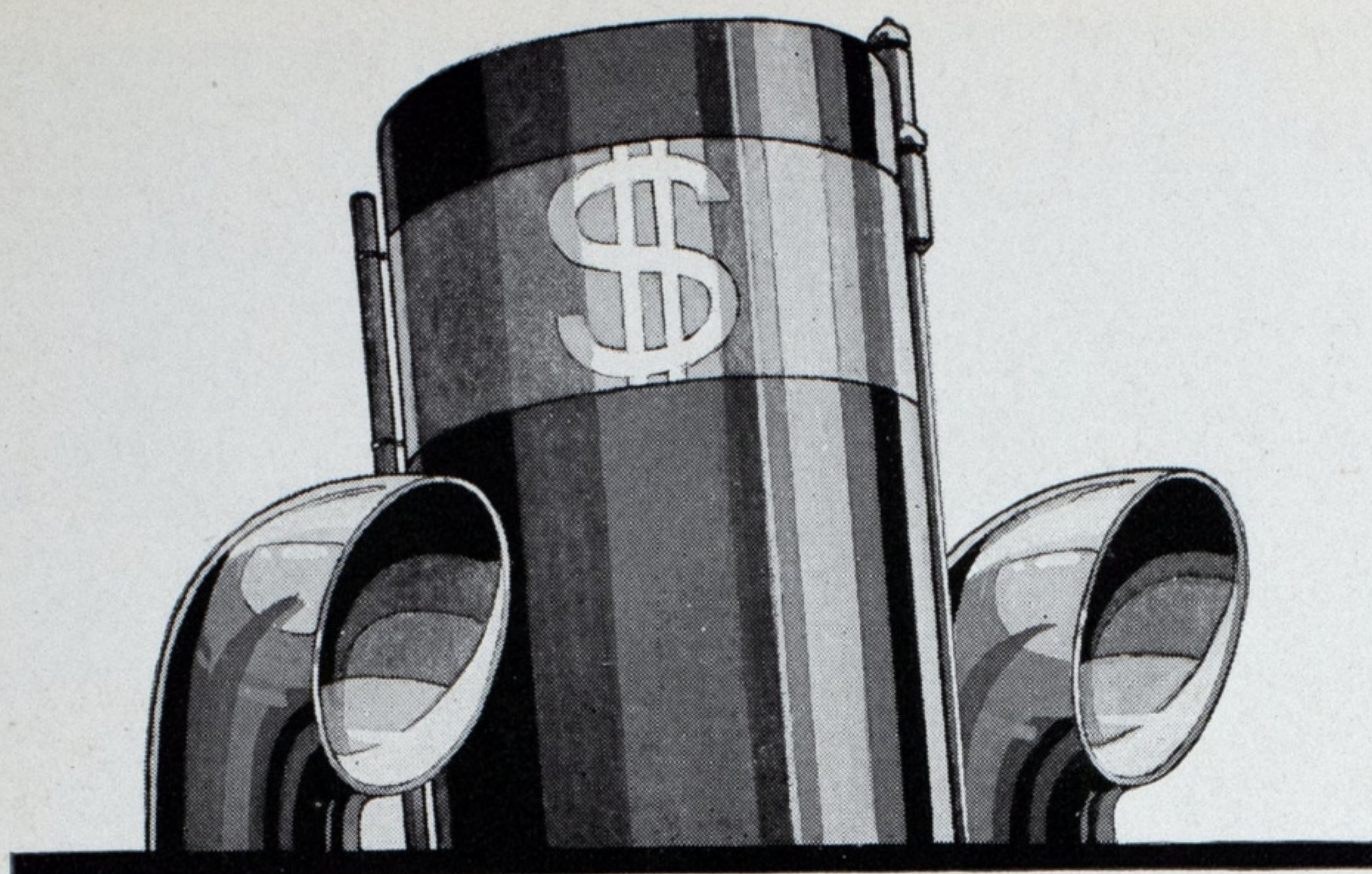
*Similar capstans and steerer are installed on the President Coolidge.*



# **AMERICAN ENGINEERING**

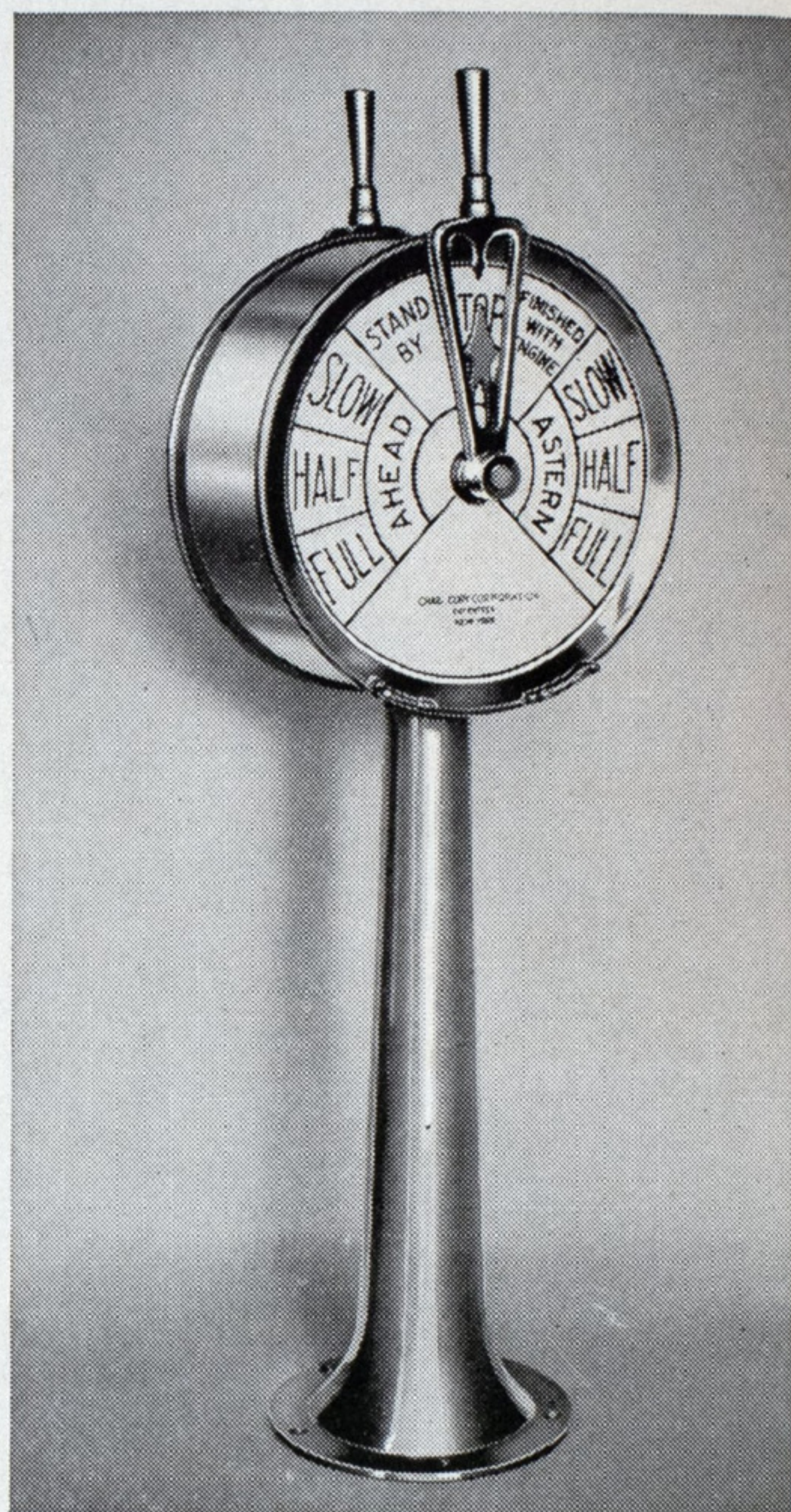
AMERICAN ENGINEERING COMPANY, 2437 ARAMINGO AVENUE, PHILADELPHIA





## THE PRESIDENT HOOVER THE PRESIDENT COOLIDGE WILL PUT TO SEA CORY-EQUIPPED

Flying the Dollar House Flag, two new liners will soon carry passengers, cargo, and mail between New York and the Far East. ● These sister ships, the *President Hoover* and *President Coolidge*, are the largest ever built in the United States. They set new standards for comfort, speed, and efficiency. Only the finest equipment was specified in their design. Cory equipment is used throughout. The Newport News Shipbuilding and Drydock Company and the Dollar Steamship lines appreciate that Cory products are in keeping with the high standards established in the construction of these boats. ● Since 1840, Chas. Cory Corporation has served the marine industry. It built the first engine telegraph in America and today still pioneers in new devices that save labor, improve service, and speed inter-communication aboard ship.



**CORY EQUIPMENT on the President Hoover and President Coolidge includes :**

- ENGINE ORDER TRANSMITTERS  
4 in the Pilot House and 1 on each docking bridge
- ENGINE ORDER INDICATORS  
4 on main operating platform
- OIL BURNER ORDER TRANSMITTERS  
Boiler room and engine room
- OIL BURNER INDICATORS  
Engine room to both fire rooms
- SPEED INDICATORS  
Engine room to both fire rooms
- CORY-KENT CLEAR VIEW SCREENS
- RUNNING LIGHT PANEL

# CHAS. CORY CORPORATION

D I V I S I O N   O F   B E N D I X   A V I A T I O N   C O R P O R A T I O N

NEW YORK OFFICE AND SHOW ROOM  
Whitehall Building, New York

HOME OFFICE AND FACTORY  
754 Lexington Ave., Brooklyn, N. Y.



# Protected at the Vital Spots

## with EXIDES

Newest Dollar Liner *President Hoover* leaves nothing to chance—carries 120-cell Exide-Ironclad Battery—Sister Ship *President Coolidge* safeguarded in similar manner.



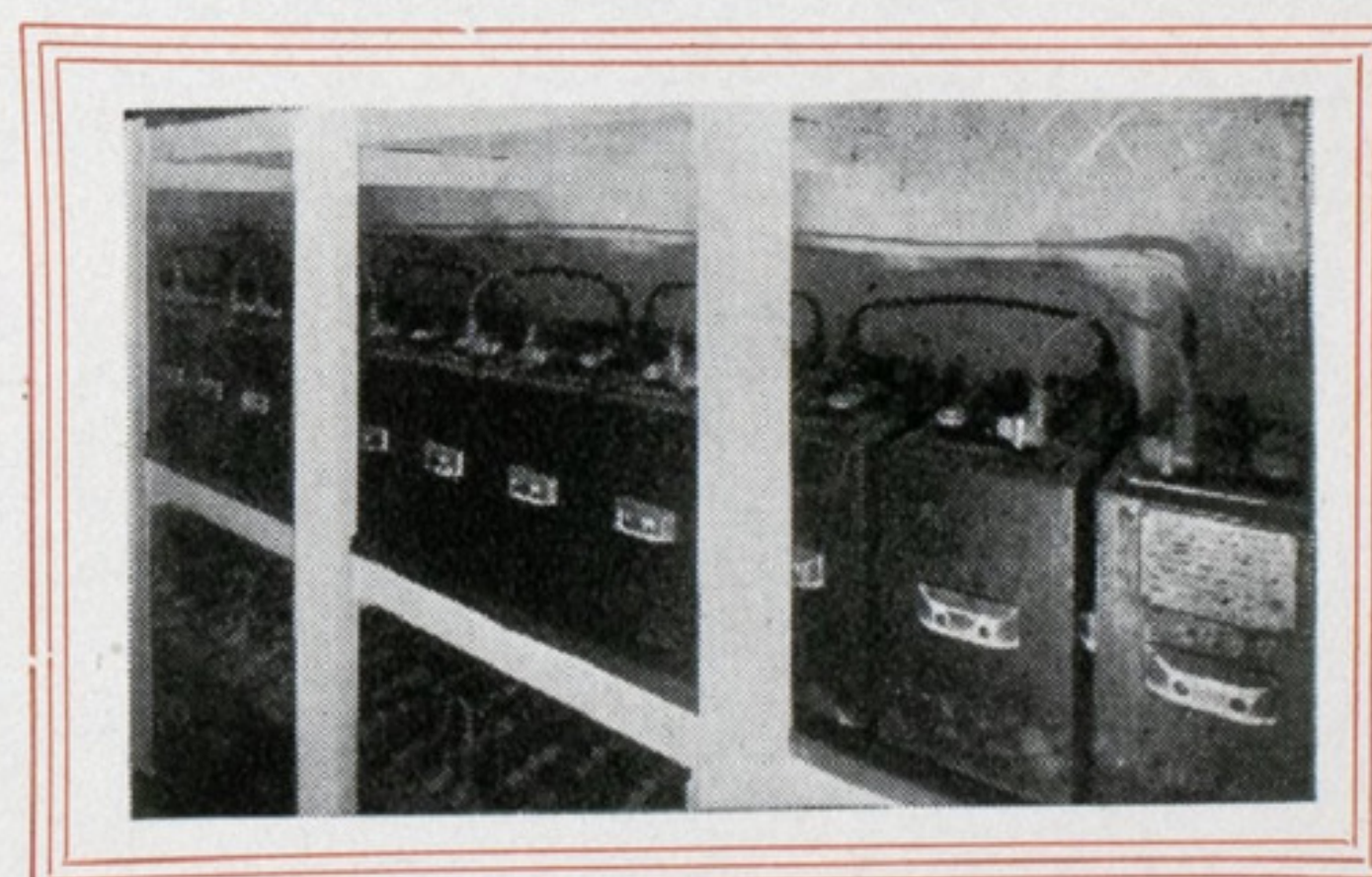
**A**BOARD a modern vessel is no place for uncertainties—the uninterrupted operation of vital spots *must be assured*. That's why the Newport News Shipbuilding & Drydock Co. installed Exide Marine Batteries on the *President Hoover* and the *President Coolidge*.

In case of an emergency or peak loads on the emergency generators, the 120-cell Exide-Ironclad that is floated on the emergency switchboard, instantly and automatically takes over the job of furnishing current for entire emergency lighting system, watertight door system and radio set. When operation of the main plant is resumed, the battery is

recharged automatically. This keeps Exides ready for instant service at all times.

In addition to this Exide are two 11-cell Exides which operate general interior communication services twenty-four hours a day. A 2-cell Exide Battery for the electrical thermometer system used in connection with refrigerated cargo spaces provides uniform voltage for this system.

Exides aboard mean safety and absolutely dependable battery performance for *any* size ship. Learn more about the many applications of Exides in Marine Service. Write for Bulletin—Form 3420. No obligation.



Partial view of 120-cell Exide-Ironclad Battery aboard the *President Hoover*

# Exide

## MARINE BATTERIES

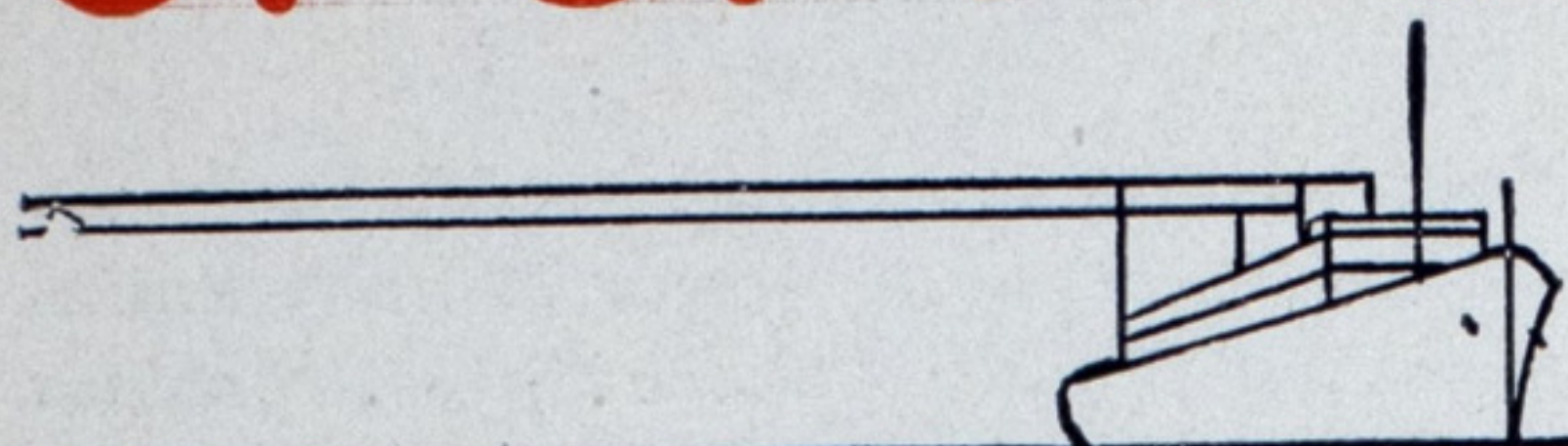
● THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia  
THE WORLD'S LARGEST MANUFACTURERS OF STORAGE BATTERIES FOR EVERY PURPOSE

*Exide Batteries of Canada, Limited, Toronto*

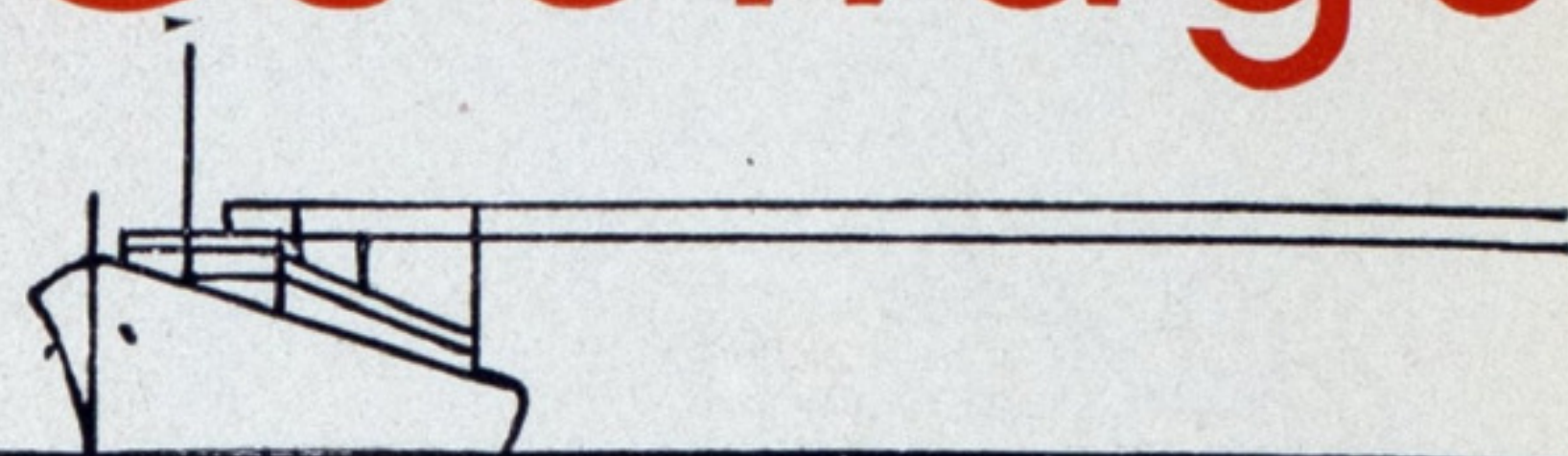
MARINE REVIEW—August, 1931



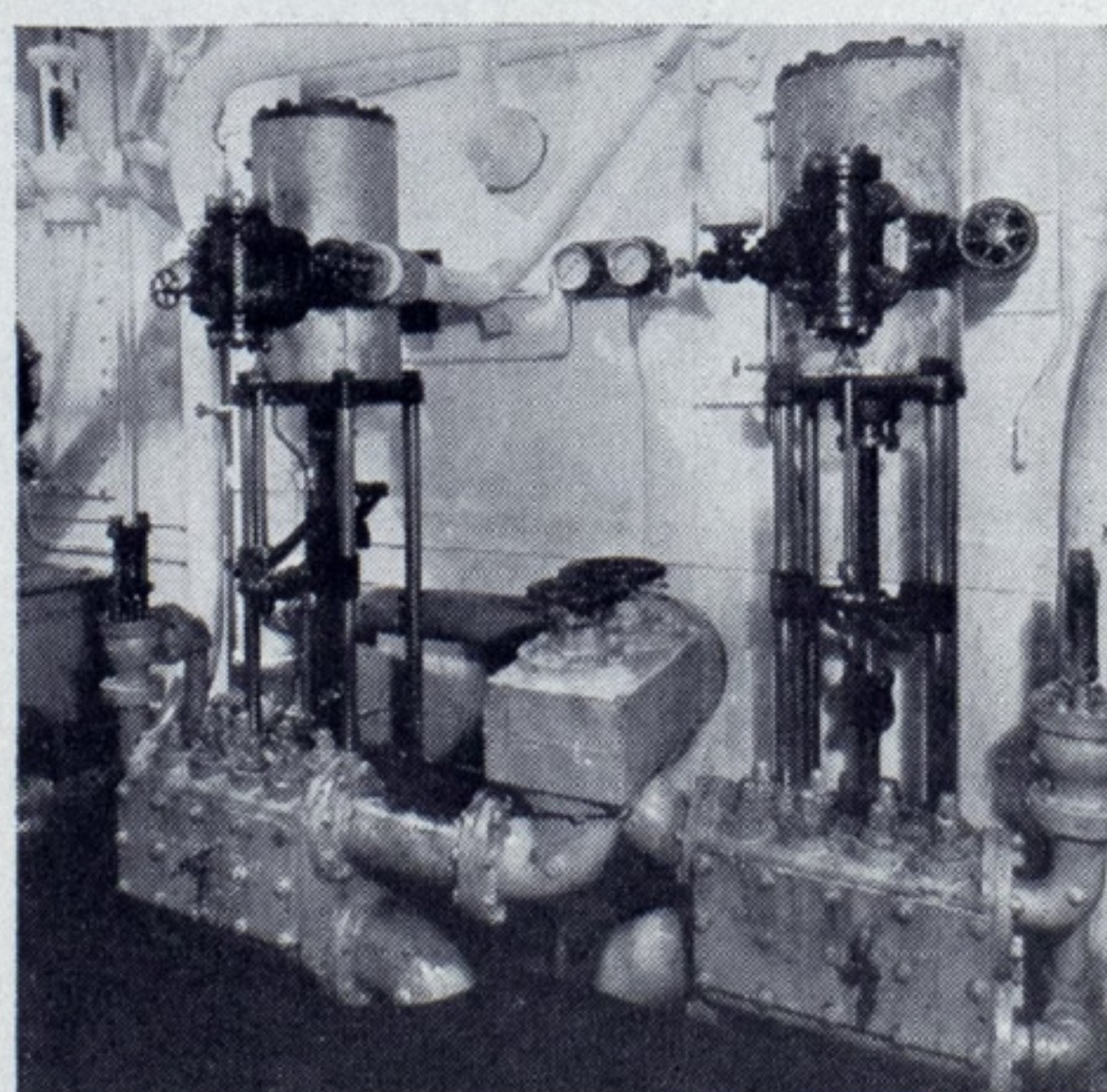
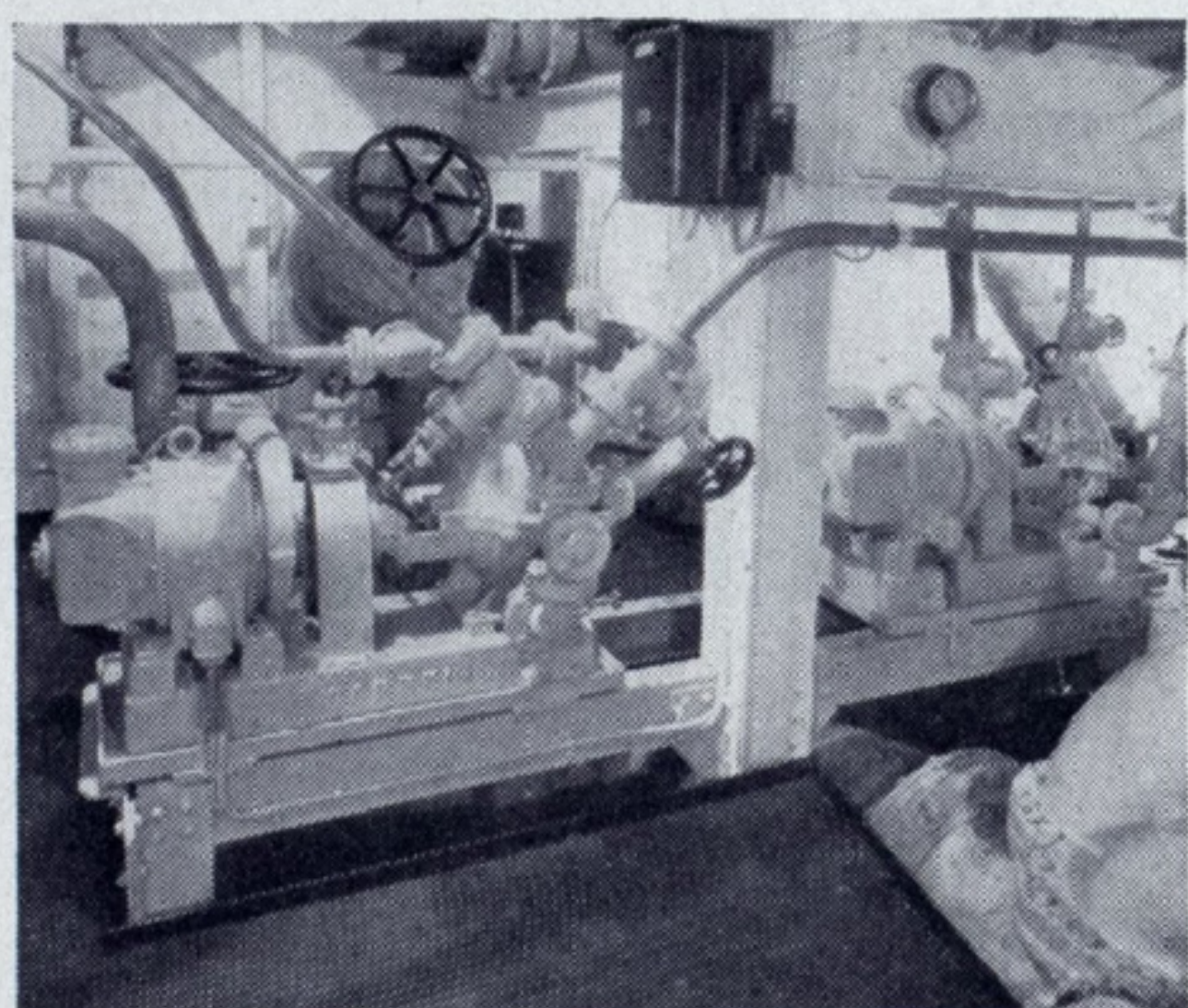
# S. S. President Hoover



# S. S. President Coolidge



## Ships of Character\*



There is significance in the fact that these fine ships are completely equipped with Warren pumps—both reciprocating and centrifugal.

Photos at left show, (top) two horizontal auxiliary condensate pumps and (bottom) two 12 x 12 x 24 vertical single lubricating oil pumps, part of the installation of Warren pumps aboard the S. S. President Hoover.

*\*With credit to Newport News Shipbuilding & Dry Dock Company.*

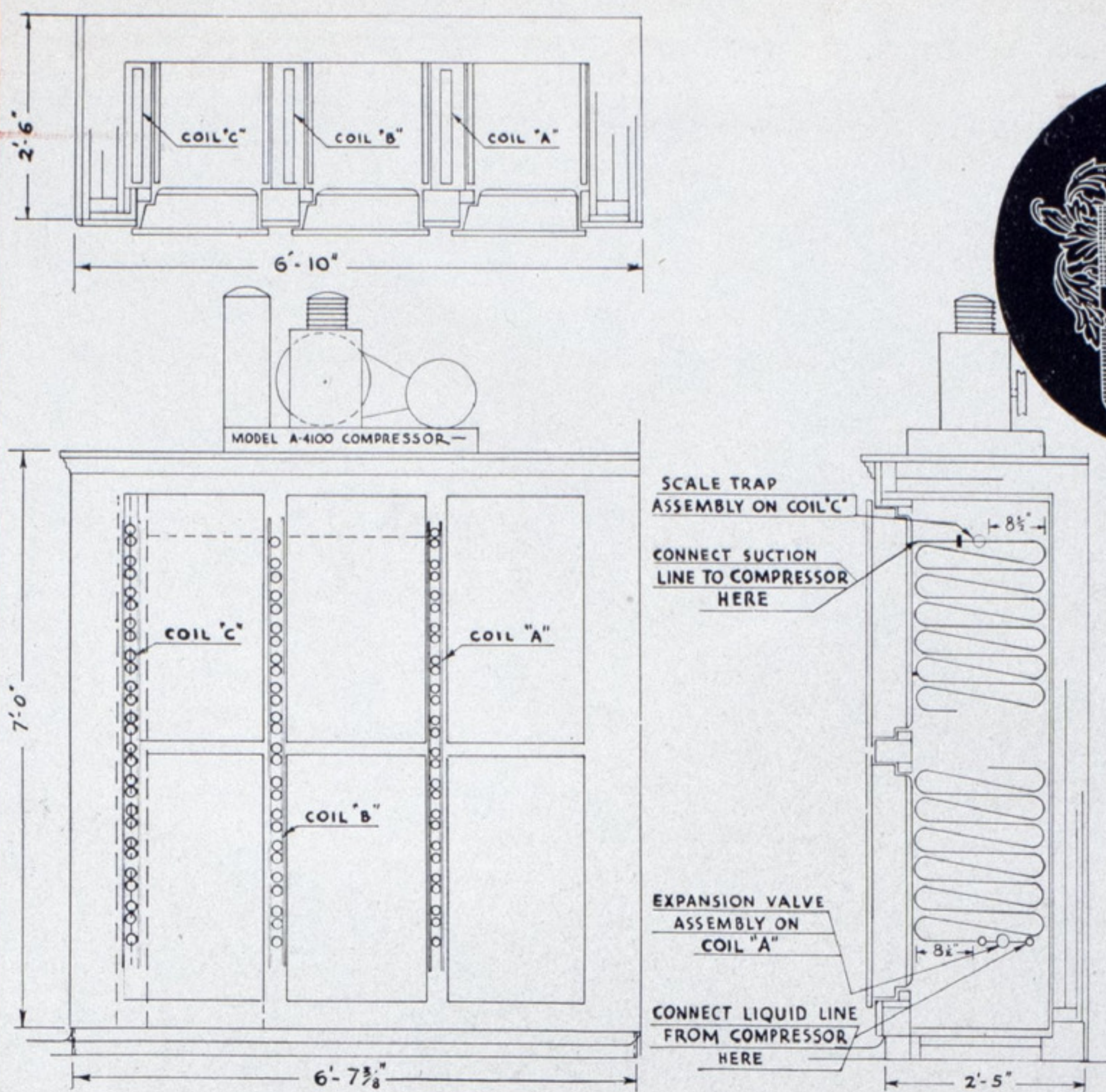
WARREN STEAM PUMP CO., Inc.  
WARREN - - - MASSACHUSETTS

Warren Engineering Corp., Agent, 117 Liberty Street, New York City  
M. L. Katzenstein, President

Western Engineering Company, Agent, 58 Main Street  
San Francisco, California

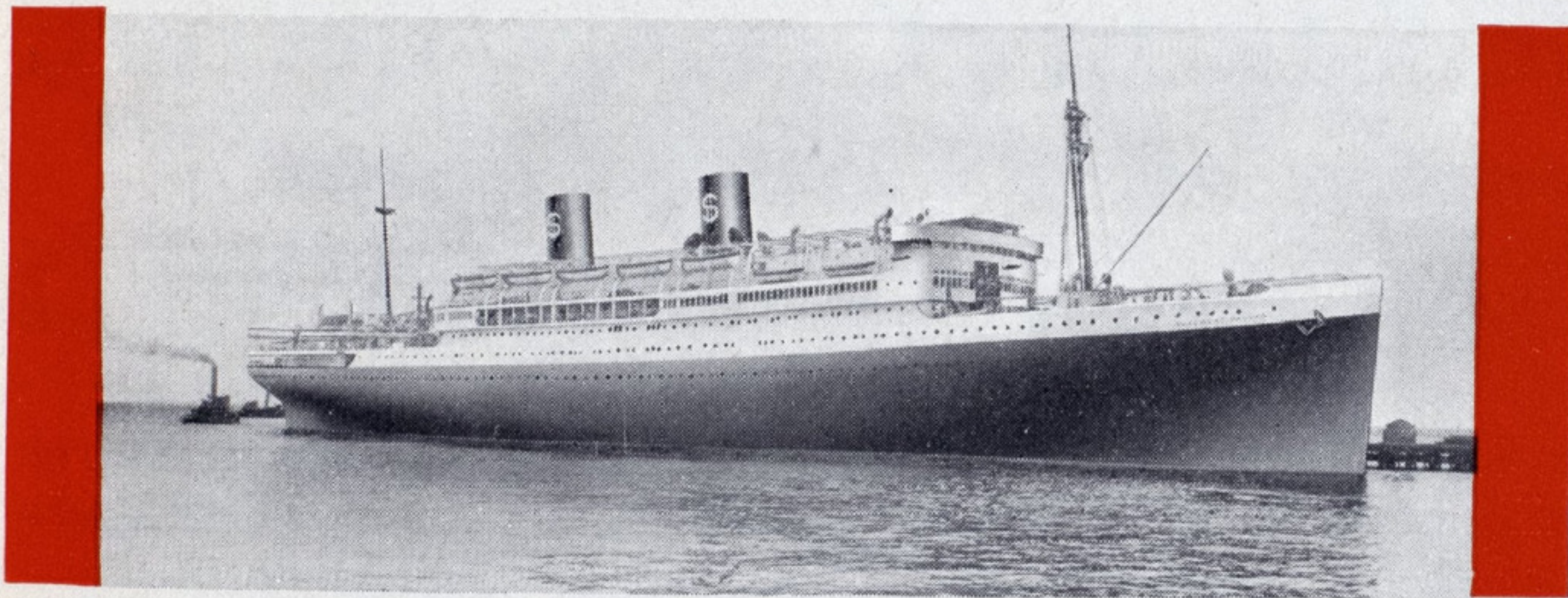


*And  
they go into  
service*



*The above illustration shows the Frigidaire installation on the S. S. President Hoover and President Coolidge. Frigidaire compressors may be placed above, below or at the side of the refrigerator ... wherever most convenient.*

*... with Frigidaire on board*



*PRIDE OF THE FLEET! Recently completed by Newport News Ship Building and Drydock Company, the S. S. President Hoover is now the largest and finest passenger vessel ever to be constructed in the United States.*

**P**RIDE of the Dollar Fleet, the S. S. President Hoover and her sister ship, the S. S. President Coolidge, are both vessels of significant interest to every man engaged in the Marine Construction Field.

Both vessels are equipped with FRIGIDAIRE Refrigeration Installations. There are many reasons, interesting to you, why the Dollar Line chose Frigidaire in preference

to all other makes of refrigerators.

Frigidaire equipment is built to withstand many years of usage. There's economy. Only the highest grade copper, steel and brass are used in their construction. There's good workmanship. Careful attention is given to every small detail.

And here's an important fact to remember. The *extra power* of Frigidaire guarantees dependable oper-

ation with a minimum consumption of electric current at all times.

*Installations Specially Designed for Each Vessel*

Every ship represents an individual problem in design and construction. Frigidaire equipment is specially engineered to suit each different marine installation.

This service includes not only consultation with marine refrigeration specialists and specification of the equipment, but also a thorough supervision of the project from the time the order is entered until the equipment is installed and has proved satisfactory in operation.

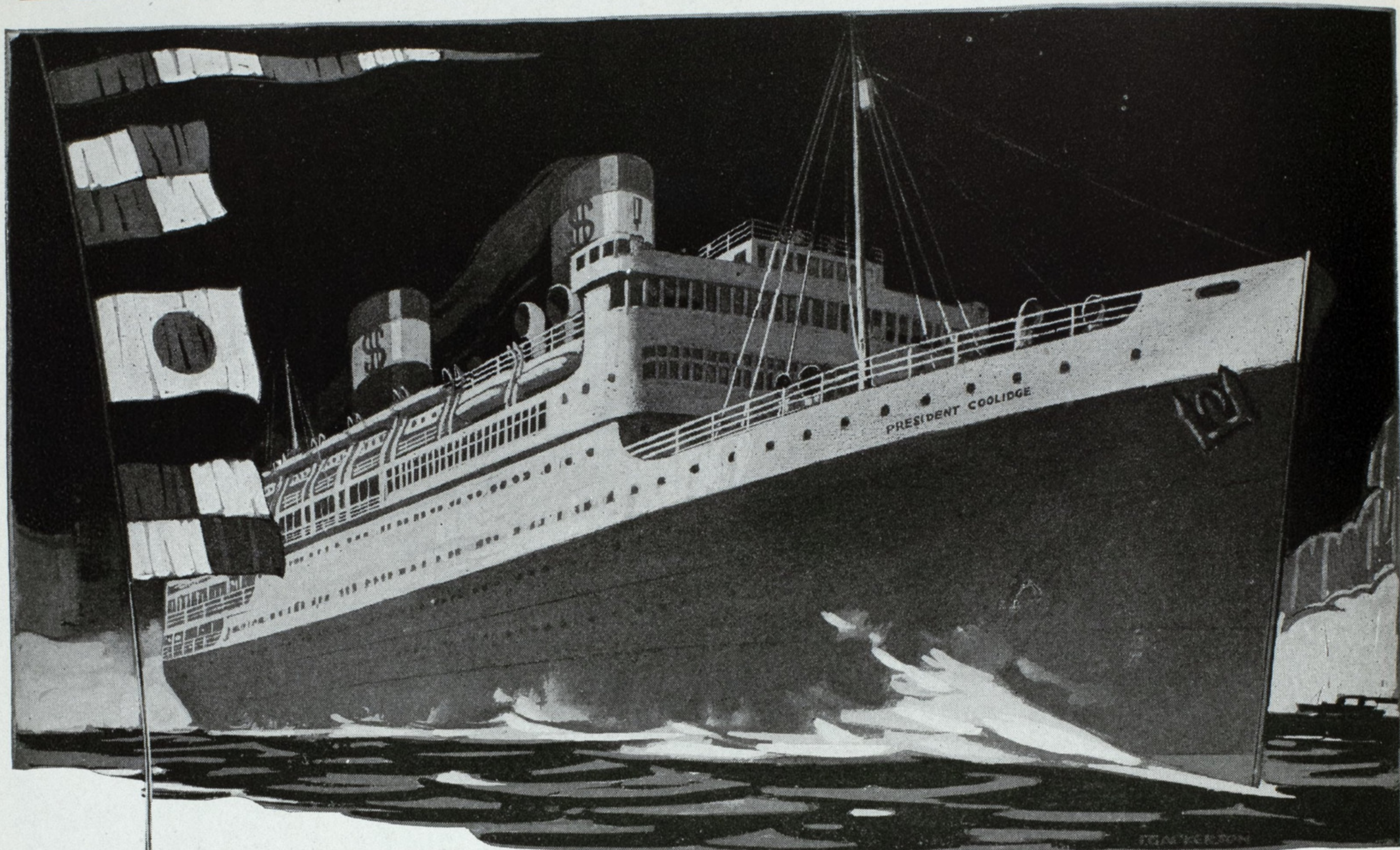
There are many other facts about Frigidaire refrigeration which you should know. Write for complete information on marine installations. Address Marine Division, Frigidaire Corporation, Dayton, Ohio.

# FRIGIDAIRE

ADVANCED REFRIGERATION

A GENERAL MOTORS VALUE



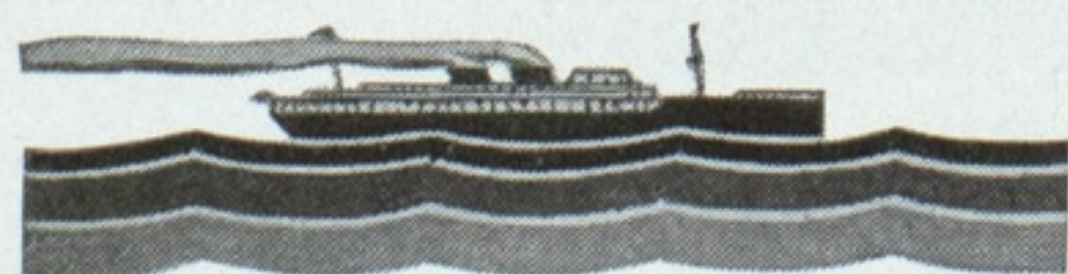


# THE S. S. PRESIDENT COOLIDGE

*(Sistership of the S. S. President Hoover)*

## ♦ ♦ ♦ WESTINGHOUSE EQUIPPED

*Westinghouse also has furnished all stateroom heaters, air ejectors and motor driven cargo cooling fans for the S. S. President Hoover.*



THE S. S. President Coolidge, sistership of the S. S. President Hoover, of the Dollar Steamship Lines, is a Westinghouse turbine-electric propelled ship of 26,500 shp. In addition to the propulsion equipment, consisting of the main turbine-generators, propelling motors for the twin screws and control for the propelling machinery, Westinghouse also furnished motors and control for all electrified deck and underdeck auxiliaries, as well as the fans and heaters for the staterooms and living

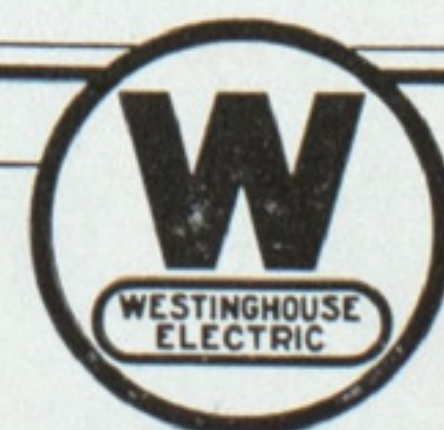
spaces. The selection of this type of propulsion is a tribute to the confidence of the shipping industry in the reliability of turbine-electric drive.

The S. S. President Coolidge and the S. S. President Hoover are the largest commercial ships ever built in America and the largest turbine-electric merchant ships in the world. They soon will enter the round-the-world service of the Dollar Steamship Lines, one of the most prominent American shipowning companies.

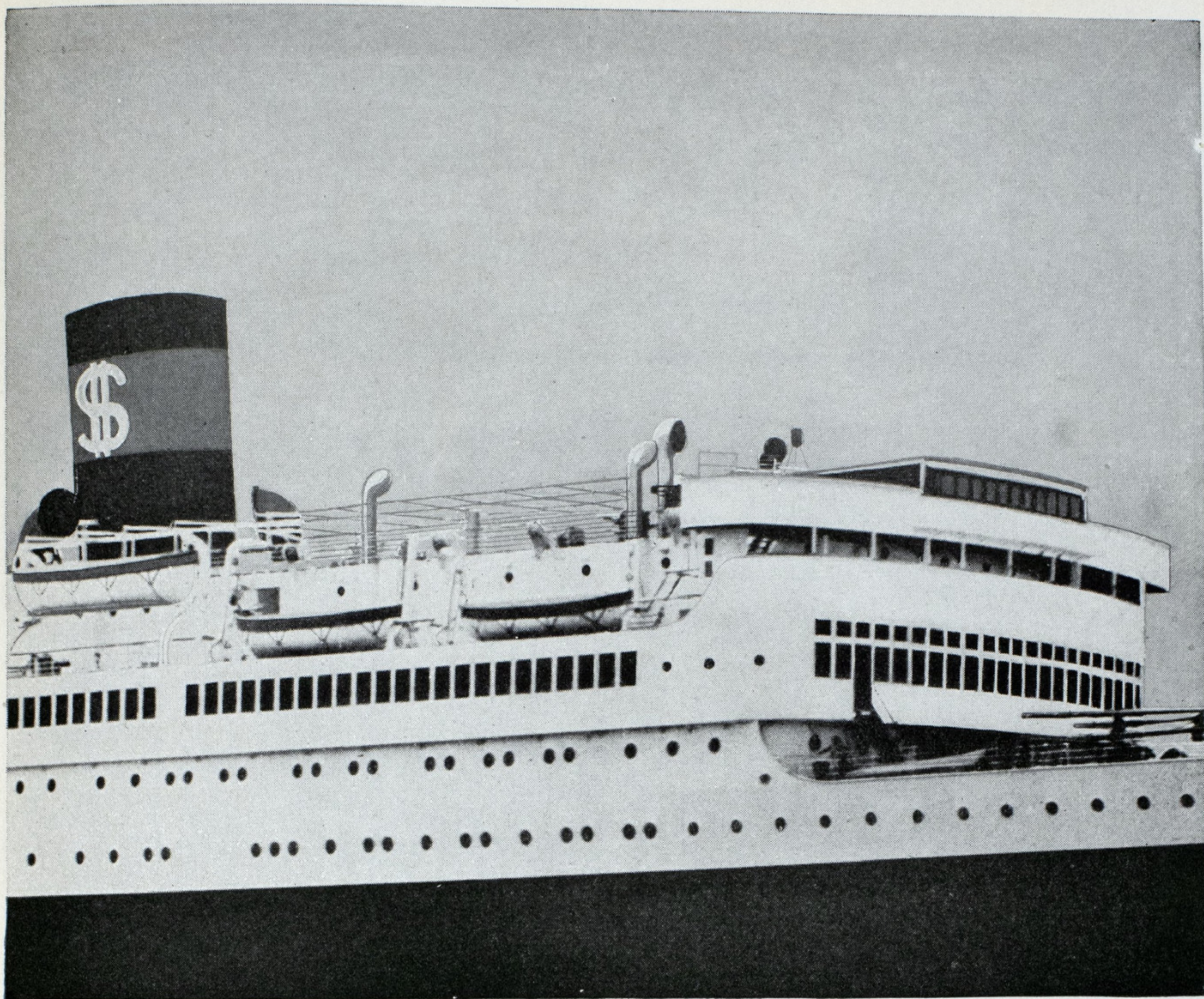
*Maintain American Shipping by Patronizing American Ships*

# Westinghouse

T 31896







New Turbo-Electric Express Steamers  
Designed and built for the Dollar Line by Newport News S. & D.D. Co.

## Kearfott Windows

on the

*President Hoover*

and the

*President Coolidge*

SHELTER windows of the sliding type enclose the promenade deck both fore and aft. Thwartships windows forward are fitted with transoms. All windows are supplied with bronze raising and lowering mechanism, and are fitted with 3/4" sashless plate glass.

Deckhouse windows in the de luxe suite, special class smoking room and soda fountain room are of water-tight design. These windows have vertically sliding sashless lights, with provision for water-tightness by hand tightening dogs.

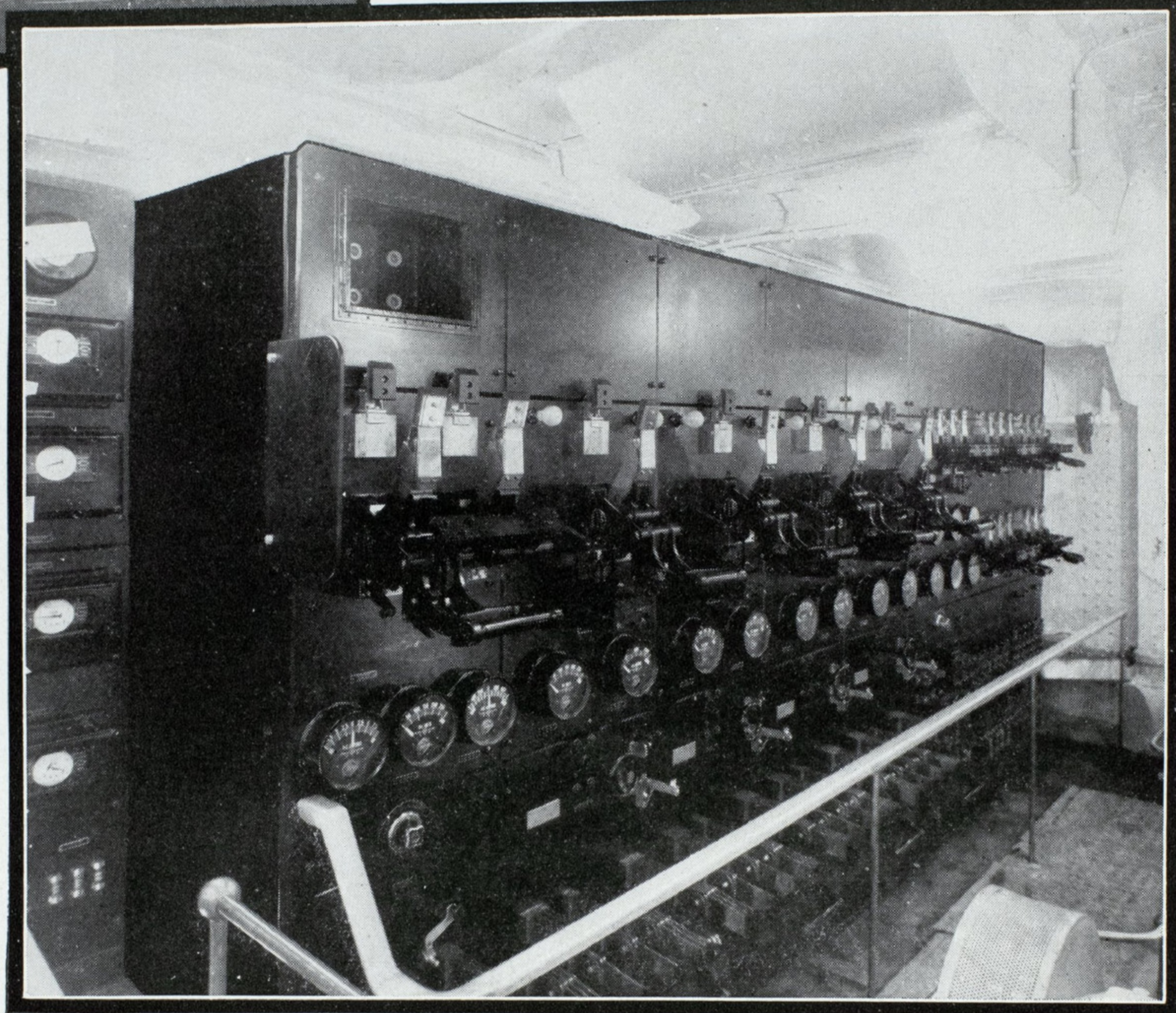
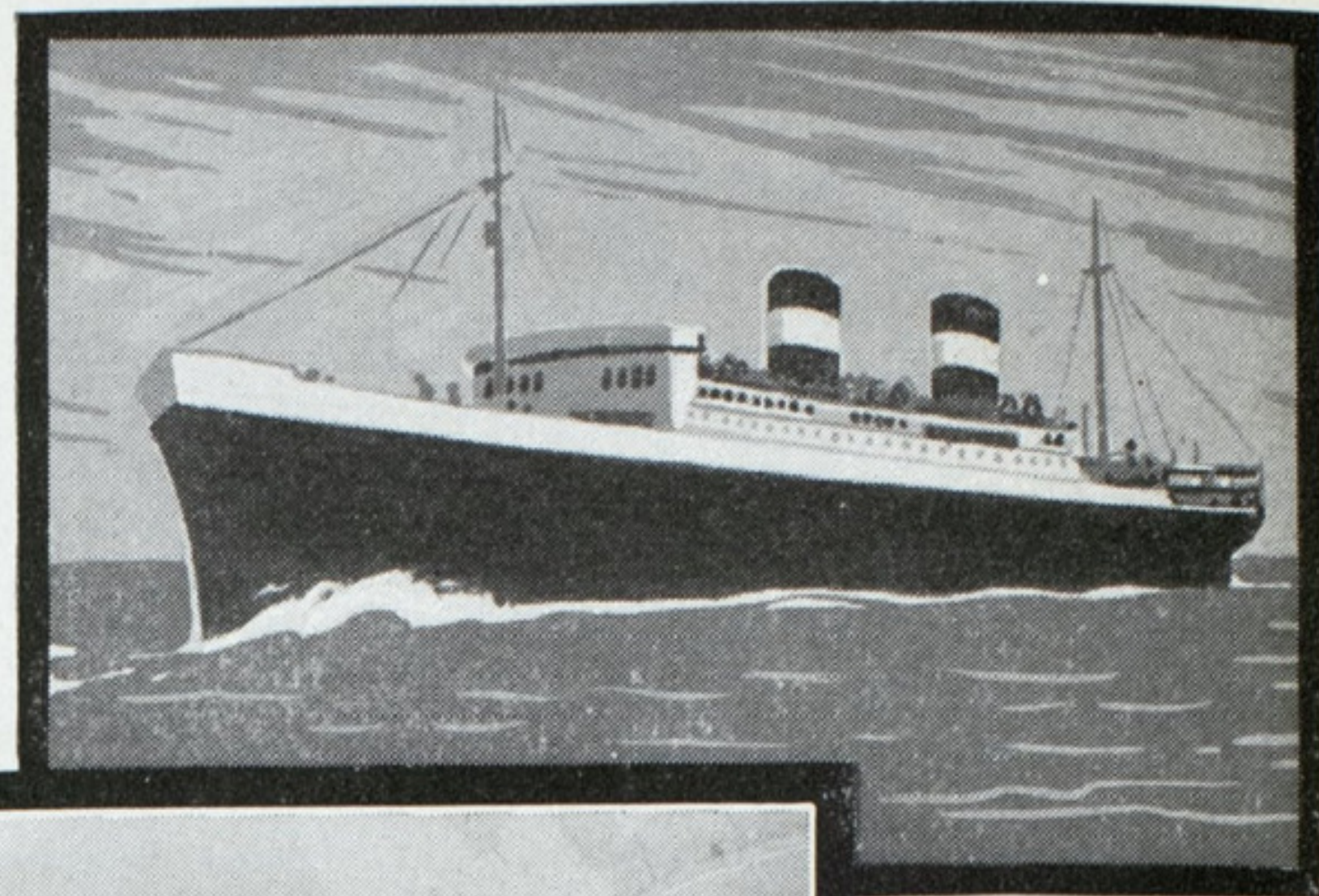
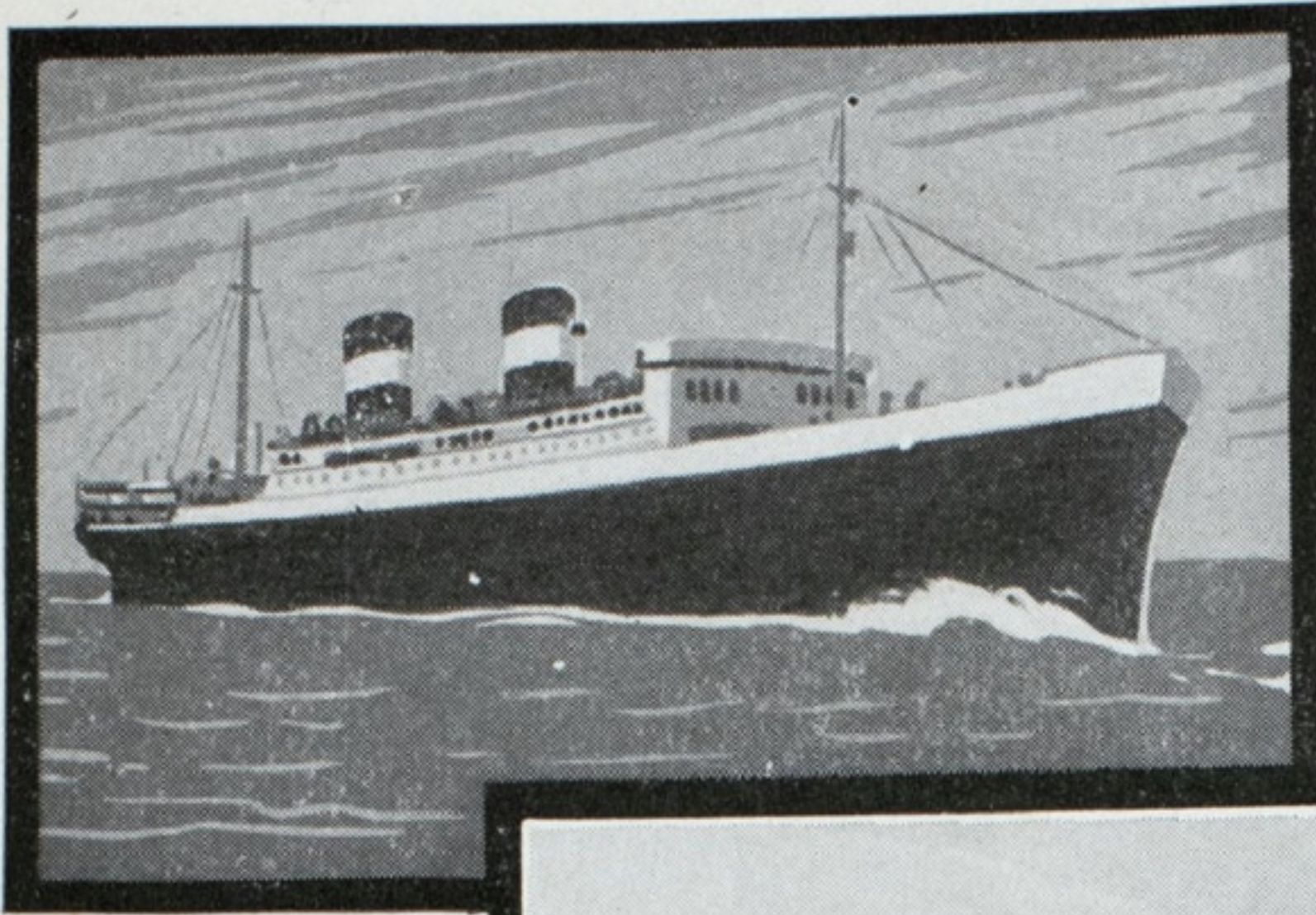
Kearfott-Kawneer Casement Windows are installed in the public rooms and stair lobbies. These windows are of various sizes and proportion to meet architectural requirements.

# KEARFOTT ENGINEERING COMPANY, Inc.,

117 Liberty Street

New York





## PROTECTED BY I-T-E

**T**HE new Dollar Line ships, President Coolidge and President Hoover, are equipped with I-T-E circuit breakers for the protection and control of the many electrical circuits that form the vital arteries of modern ships.

The I-T-E circuit breakers on these ships protect all of the power, light, heating, refrigerating and ventilating circuits against overload and short circuits, and also protect the main generators

against reverse current. They insure the smooth operation of the ships and freedom from delays due to burned-out cables, motors and generators.

Pioneers in the design and manufacture of circuit breakers, I-T-E for over forty-two years has concentrated on the construction of dependable protective equipment, of the highest grade.

It is indeed fitting that the designers of these fine ships chose I-T-E circuit breakers.

I-T-E CIRCUIT BREAKER COMPANY, 19TH AND HAMILTON STS., PHILADELPHIA

Birmingham, Crawford Bldg.; Boston, 201 Devonshire; Buffalo, Ellicott Sq. Bldg.; Chicago, 333 N. Michigan Ave.; Cincinnati, Union Trust Bldg.; Cleveland, Terminal Tower Bldg.; Dallas, Burt Bldg.; Denver, Tramway Bldg.; Detroit, Penobscot Bldg.; Duluth, Providence Bldg.; Kansas City, Midland Bldg.; Los Angeles, 106 W. 3rd; Minneapolis, Plymouth Bldg.; Montreal, 151 LaGauchetiere St. West; New Orleans, 708 Girod St.; New York, 12 E. 41st St.; Omaha, Electric Bldg.; Philadelphia, 1505 Race; Pittsburgh, Grant Bldg.; St. Louis, Bank of Commerce Bldg.; San Francisco, Call Bldg.; Seattle, 802 33rd Ave.; Tulsa, 1619 South Columbia Place; Toronto, 9 Duke Street; Vancouver, 500 Beatty Street; Winnipeg, National Cartage Office Building.



# S. S. PRESIDENT HOOVER

INTERIOR PLANS, ARRANGEMENT &  
INTERIOR ARCHITECTURE DESIGNED  
INTERIOR DECORATION, FURNITURE  
& FURNISHINGS DESIGNED & MADE

*By* A. F. MARTEN Co.



Desiring to offer the traveling public the utmost in convenience, comfort and beauty, the

DOLLAR S. S. LINES INC.

awarded the contract for the planning & supervision of the entire interior arrangement & architecture

*and the*

Designing & manufacturing of the complete furnishing for this magnificent addition to their fleet to our well equipped and experienced organization.

THE STEAMSHIPS  
PRES'T HOOVER  
*and*  
PRES'T COOLIDGE

are two of several ships  
equipped

*by*

## A. F. MARTEN COMPANY


INTERIOR ARCHITECTURE  
DECORATION FURNISHINGS  
FURNITURE MAKERS

1501 SUTTER ST. SAN FRANCISCO PHONE OR 4512



# from NEWPORT NEWS

## For the Line



### **Ships of Character**

THE delivery of the S. S. President Hoover to the *Dollar Steamship Lines, Inc., Ltd.* marks one more page in the enviable history of ships built at NEWPORT NEWS.

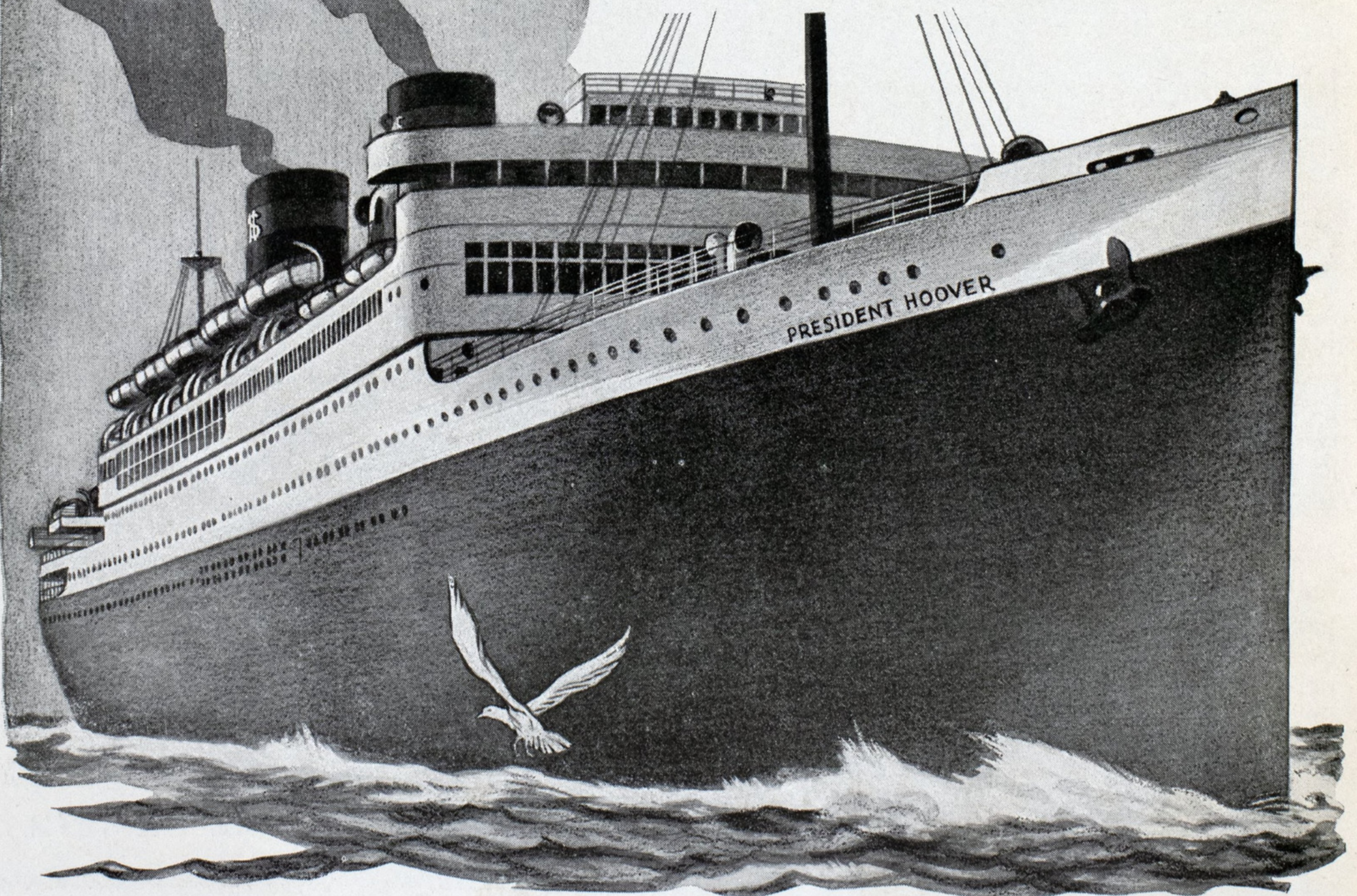
Not only is this splendid merchant vessel the largest ever constructed in American shipyards but it is also the *largest electric liner* flying any flag engaged in maritime transportation.

In a few weeks her sister ship the S. S. President Coolidge will also be ready for service.

### Newport News Shipbuilding and Dry Dock Company

Newport News, Va.

90 Broad St. New York City







"Clarkat" and Clark Steel Trailers, used by Marra Bros., Stevedores, unloading a Dollar Line round-the-world ship at Dollar Pier No. 9, Jersey City, N. J.

## "Clarkats" and Clark Steel Trailers unload the ship, reload it and speed it out to sea again

"Clarkat"—industry's smallest tractor—adds to the ship's profit by keeping it at sea, carrying pay cargo, a maximum number of days each year. It does that by speedy handling of cargo. So small that it easily turns around in a box car—so powerful that a 25-ton trailer load is a normal job for it.

And it's gas powered—capable of 24-hr. continuous operation and just as potent the last hour as the first.

It's the *only* direct gas driven industrial tractor with so much power per pound of

weight and so small a turning radius. It pulls trailer trains up ramps, through narrow side ports, along crowded wharves—saving time, cutting cargo handling costs. The driver rides at rear and couples and uncouples trailers without dismounting.

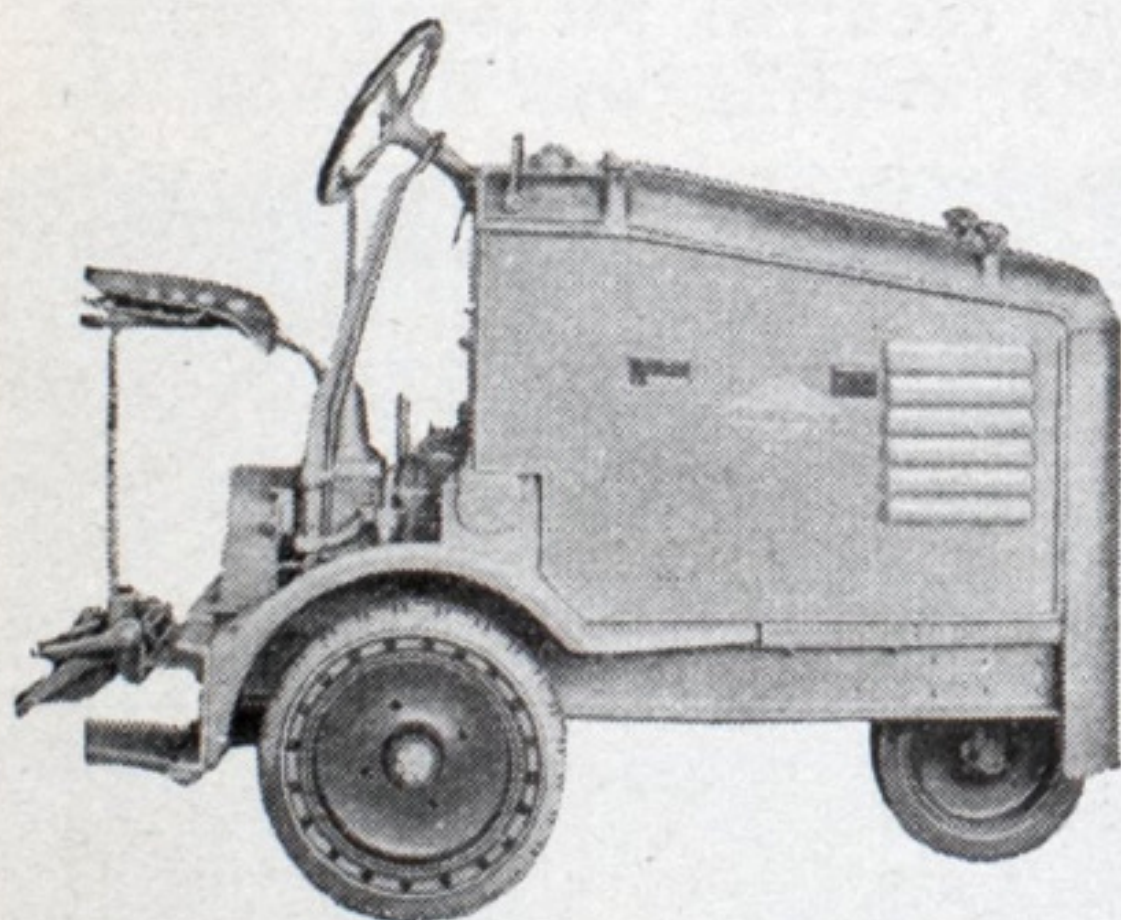
Clark Trailers are built as trailers should be—for long, hard, gruelling service. Platform of  $\frac{1}{4}$ -in. steel plate, welded corners, alloy steel axles, spindles and king pins, Clark Universal Couplers, rubber-tired wheels. Capacities 2 to 4 tons—54 to 89 cu. ft.

Write for "Clarkat" and Clark Trailer Bulletins and information on cargo handling costs.

**The Clark Trutractor Co.**

Battle Creek, Mich.

Attach this  
ADVERTISEMENT  
to your inquiry



"Clarkat"—active as a cricket, nimble in traffic, a bear for work. Only 78 in. long, 38½ in. wide, weighs 2700 lbs., has 2,000-lb. max. drawbar pull, turns in a 51 in. radius, operates at ½ to 7½ miles per hr.

# Speed cargo handling

A ship earns money at sea  
—not at the wharf



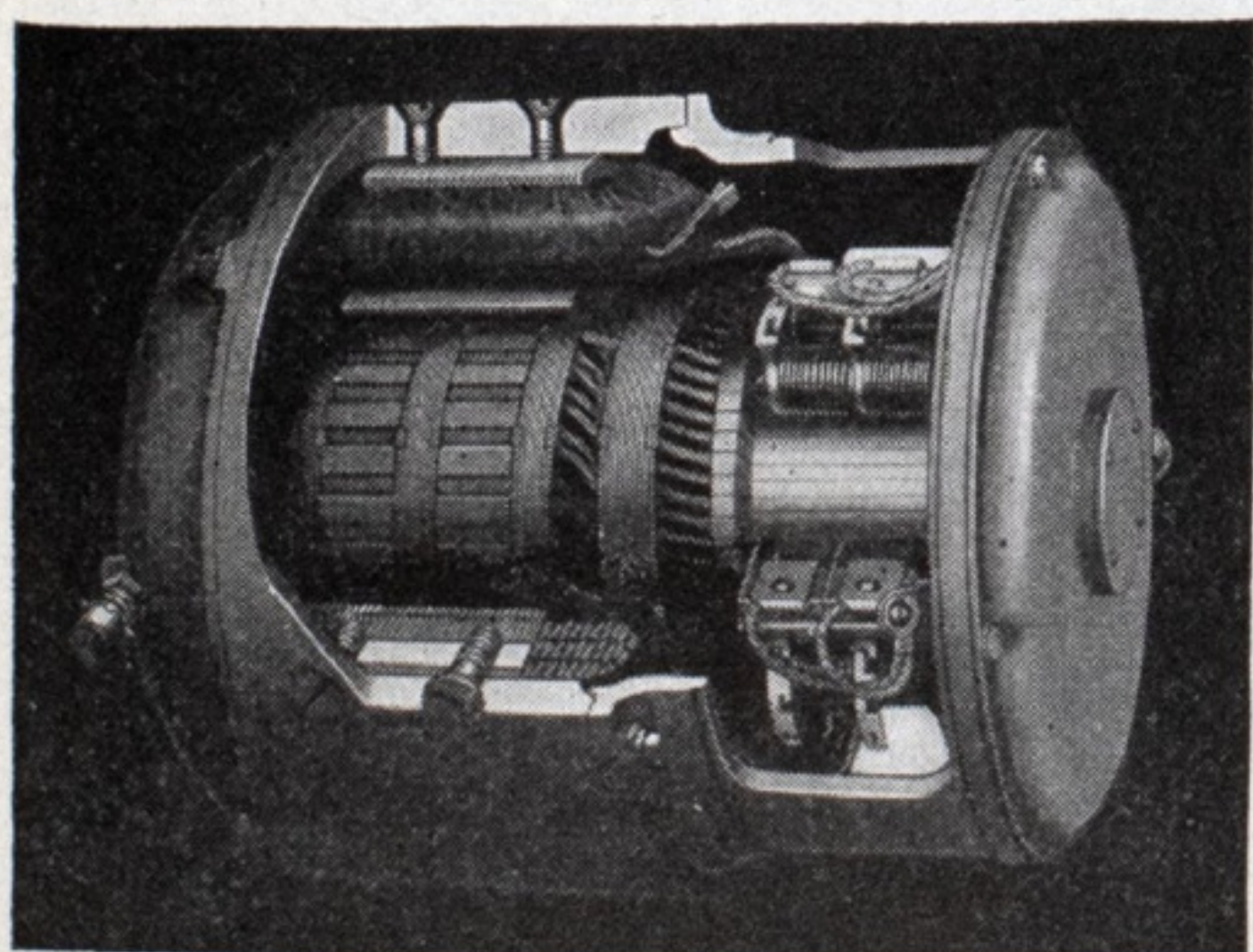


## ELWELL-PARKER GIVES YOU GREATER

# *Adaptability*

*Here an Elwell-Parker Truck operates both as a tractor and a trailer-loading truck. Notice the forks swung out of the way when not in use.*

**Keep Posted on New Handling Methods**—Elwell-Parker is constantly developing new and interesting information on handling marine freight by cost-cutting methods. Send your name to The Elwell-Parker Electric Co., 4200 St. Clair Ave., Cleveland, Ohio, requesting that this information be sent to you as issued.



*Motors are designed and built by Elwell-Parker solely for use in Elwell-Parker Electric Trucks. These motors take all the current the battery will supply because they are built to meet the enormous demands of electric trucking*

**S**SELECT an Elwell-Parker truck—no matter whether you are making your first electric truck installation, or rounding out a complete handling system—with the thought that you will need to make few, if any, changes in your present layout.

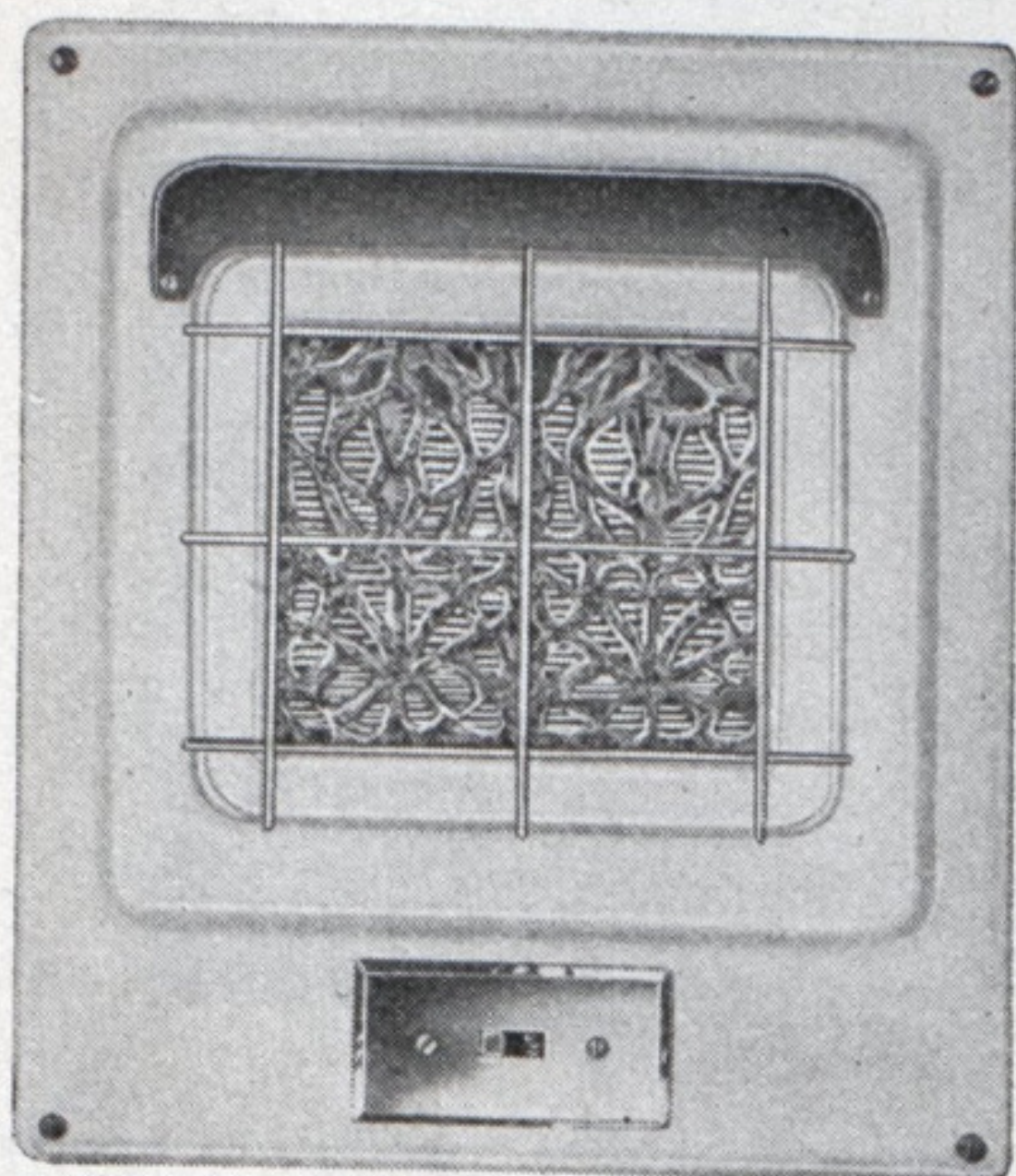
From the most complete line, with thirty-nine standard sizes and types of Elwell-Parker trucks to choose from, one or more is certain to fit your requirements. And when a special case does arise, Elwell-Parker can meet it. Elwell-Parkers are made from standardized parts, with unusual adaptability to specific requirements by the addition of special features to meet difficult handling problems.

Elwell-Parker Field Engineers throughout the country have access to the most improved methods of handling now in use. They will gladly submit drawings and specifications of the Elwell-Parkers that can be engineered to meet your requirements most satisfactorily.

**ELWELL-PARKER**  
DESIGNERS AND BUILDERS OF ELECTRIC INDUSTRIAL TRUCKS,  
TRACTORS AND CRANES FOR OVER A QUARTER CENTURY



# INSTANT HEAT ALWAYS READY



Model 102A      Volts 110      Rating 1000 Watts  
 Dimensions  
 Frame: 14" Wide 16 1/4" High  
 Body: 11 3/4" Wide 11 3/4" High 4" Deep  
 Finishes—White, Ivory, Green and Orchid  
 Requires No. 12 Wire for connection.

At a snap of the switch your passengers can heat their staterooms to their liking.

Add to the comfort of travel and increase traveling. Write for full details.

## THE RADIANT ELECTRIC HEATER



SUPERIOR MANUFACTURING COMPANY  
 CARNEGIE, PA. \*1

## Cargo Handling . . . .

Marine Review is the only marine publication devoting a special editorial section to the problems of stevedoring and cargo handling. Operating executives everywhere are effecting new economies by applying methods and principles described in this section each month.

Cargo handling—approximating 30 per cent of ship operating expense—is a source of increased profits when modern methods are applied.

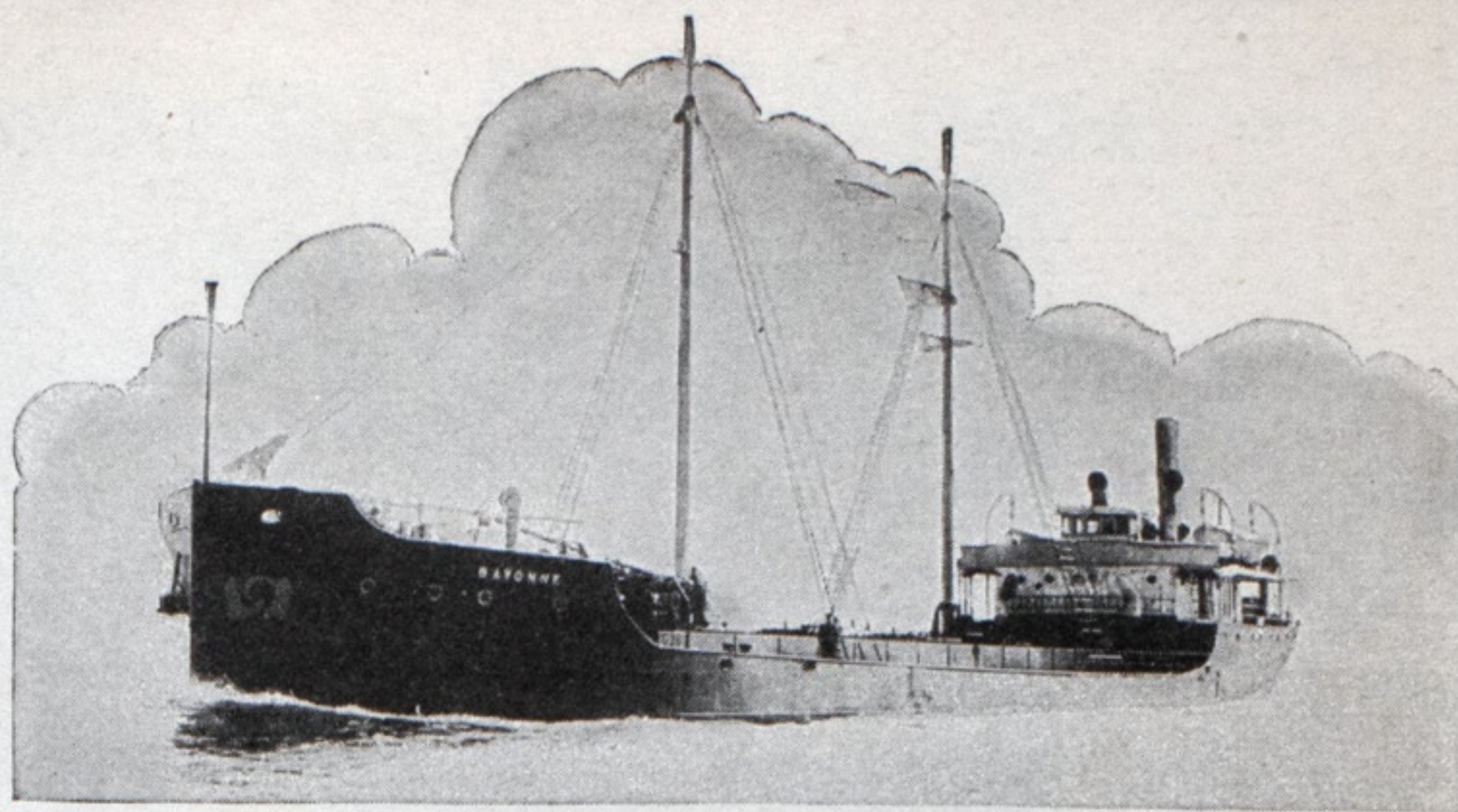
A subscription will bring this service to you the first day of each month.

Address:

### Marine Review

Penton Bldg.  
 Cleveland, O.

220 Broadway  
 New York, N. Y.



*Motor Tanker Bayonne. Full-load draft, 14 ft. 11 in. Deadweight tonnage, 1750. Average speed at sea with 1700-ton cargo, 8.3 knots. Fuel consumption at 8 knots average speed, 9.55 gal. Owner, Vacuum Oil Company.*

## 270,000 Miles in eleven years ...Engines still in prime condition

**T**HROUGHOUT her existence, the 207-ft. Motor Tanker Bayonne has consistently averaged about 57 round trips yer year, carrying bulk oil between refineries in Bayonne and Paulsboro, N. J.

Although only a single-screw vessel, with but one 640-i. hp. McIntosh & Seymour Engine to depend upon for propulsion, and in winter compelled to ride through heavy coastal storms and ice fields, the Bayonne has maintained her schedules with marked punctuality, with very little expense for engine maintenance, and is giving thorough satisfaction to her owner.

In these respects, the engine of the Bayonne is typical of long time McIntosh & Seymour marine installations, some of which have outlasted their original hulls and are doing as good work in a second as in the first.

Recent improvements in weight, compactness, lowered head room, enclosure of moving parts, etc., make present types of McIntosh & Seymour Engines adaptable to an extremely wide range of marine service.

*Write for booklet "McIntosh & Seymour Diesel Engines for Motorships"*

### McINTOSH & SEYMOUR CORPORATION

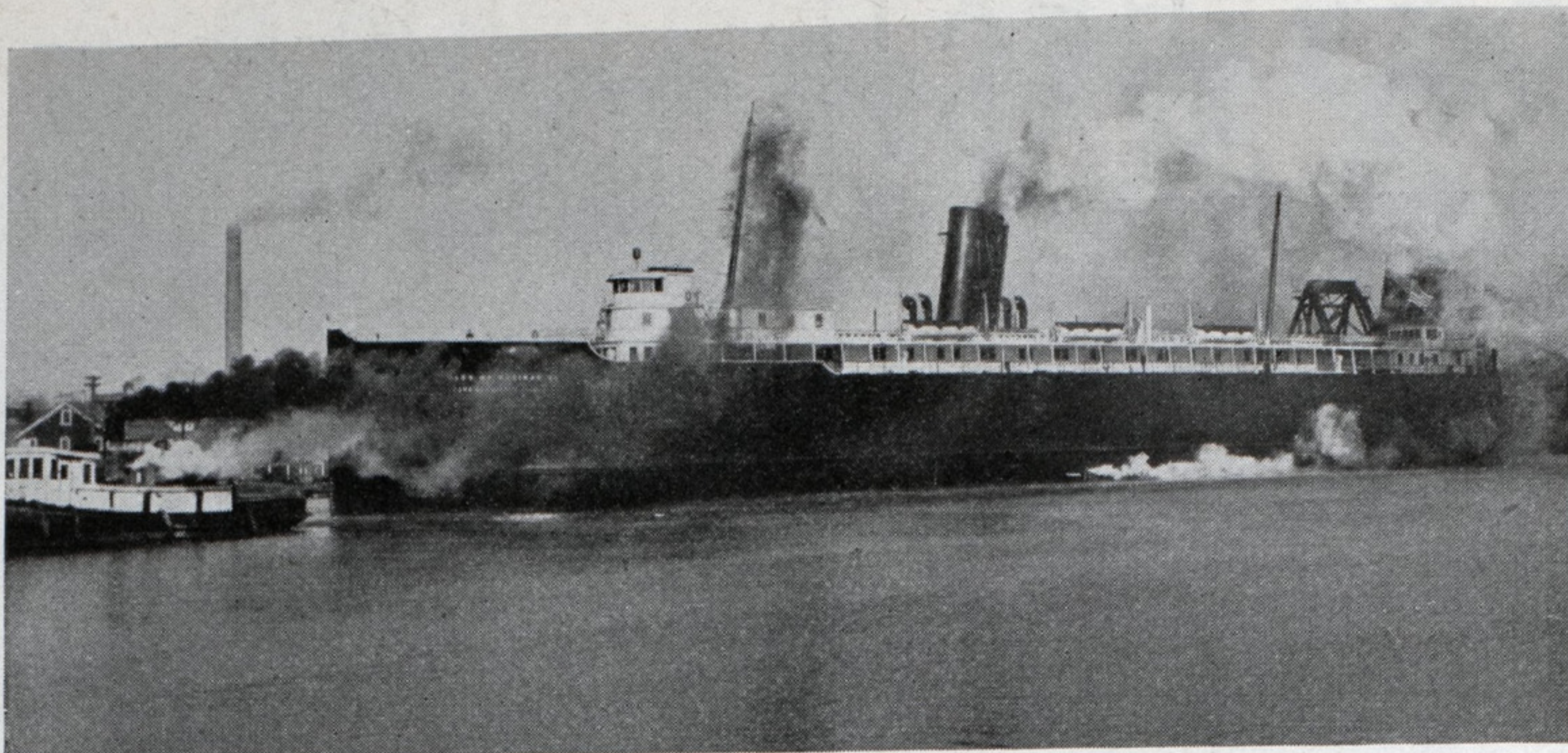
*Division of American Locomotive Company*

Main Offices and Works: Auburn, N. Y.

New York City      Washington, D. C.      Houston, Texas  
 30 Church St.      910 Seventeenth St., N.W.      2408 Esperson Bldg.  
 Kansas City, Mo.      San Francisco  
 1016 Baltimore Ave.      514 Matson Bldg.

## McINTOSH & SEYMOUR DIESEL ENGINES



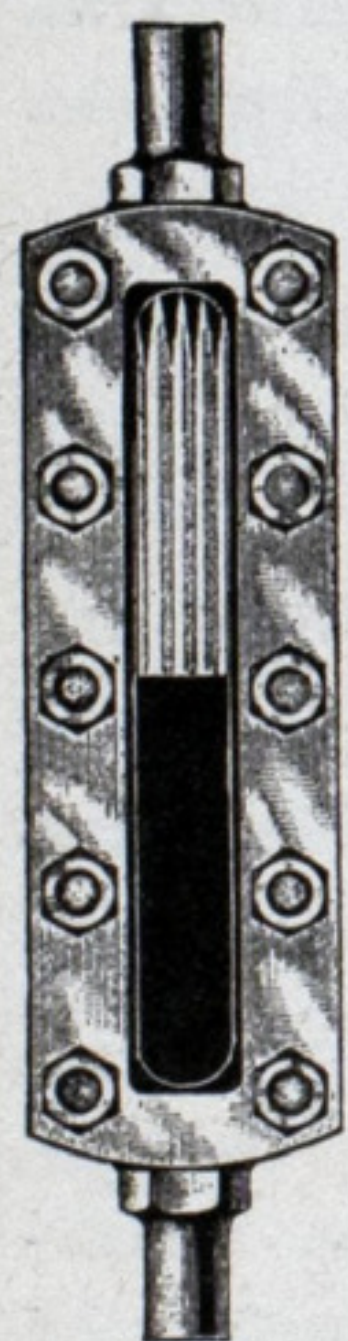


HERE IS THE CITY OF SAGINAW 31, the turbo electric drive carferry built by us for the Pere Marquette Railway Company. When it comes to designing and building vessels our engineering organization, skilled workmen, and modern facilities guarantee satisfaction to the customer.

We design and build steel passenger and freight vessels, carferries, oil tankers, sand suckers, lighters, dredges, yachts, fire boats, tugs, derricks, scows, marine engines and boilers. At this plant you will find excellent facilities, including a 600' steel floating dry dock, for ship, engine and boiler repairs.

## MANITOWOC SHIPBUILDING CORPORATION

MANITOWOC, WISCONSIN



### REFLEX WATER GAGES

Used on all types of boilers by all the Principal Navies of the world

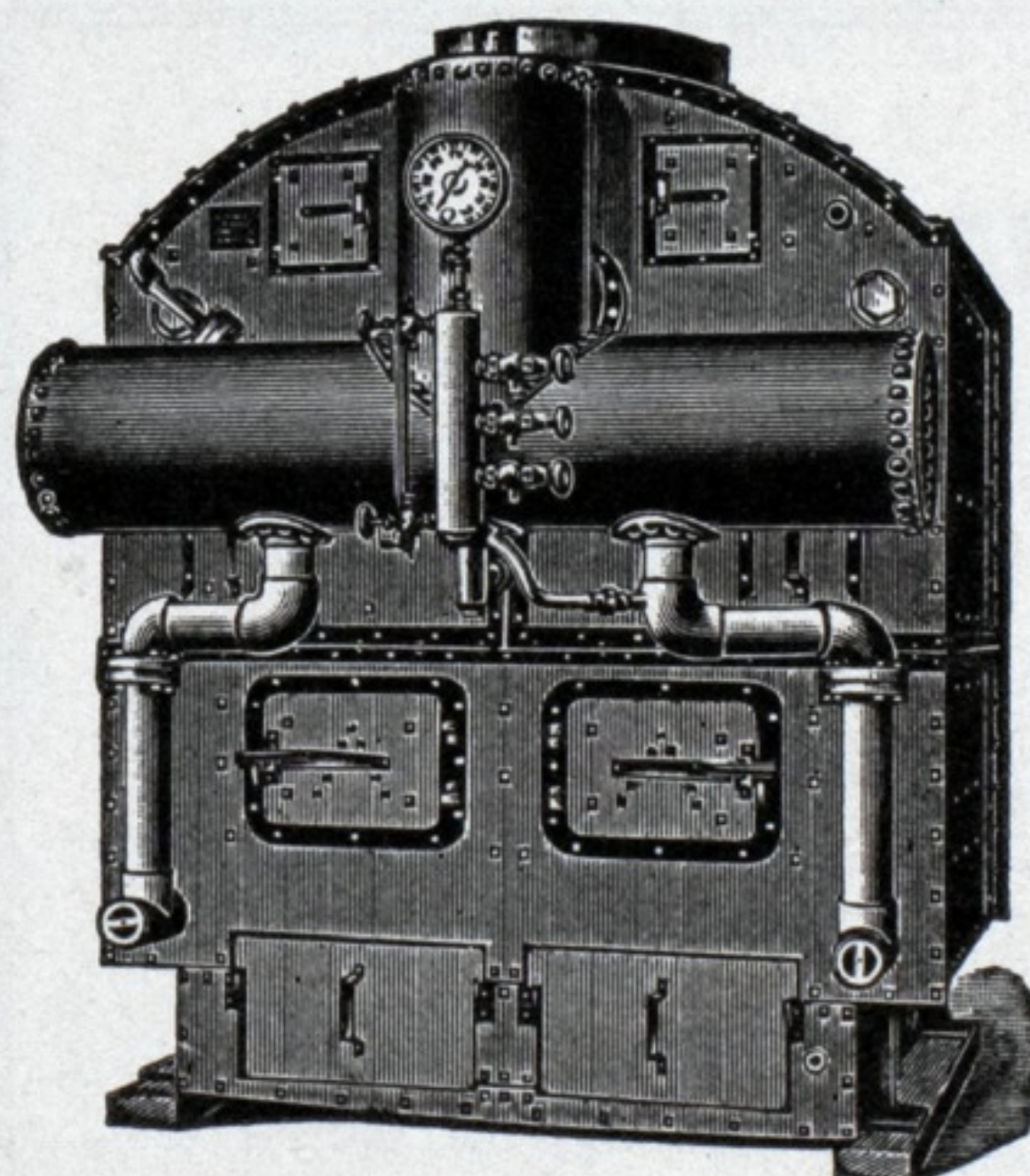
**"The Water Shows Black"**

**ADVANTAGES:** Quick and reliable observation of the water level. Safe, sure and durable at high pressure. Not affected by cold air drafts. Most effective protection against injuries to boilers and workmen. Easily applied to all types of gage glass fittings.

When filled with WATER the Reflex Gage always appears **BLACK**. When empty it instantly shows **WHITE**. No mistake possible. This feature alone is worth many times the cost of the Reflex.

Send for catalog of Water Gage Apparatus

MANUFACTURED BY THE  
**JERGUSON  
GAGE & VALVE CO.**  
WINTER HILL, SOMERVILLE, MASS.



CATALOGUE FREE

### Almy Water Tube Boiler Co.

Builders of  
Sectional Water  
Tube Boilers  
for all types of  
vessels

Providence, R. I.  
U. S. A.

Baltimore City Office  
310 E. Lombard St.  
Plaza 1935

New York Office  
No. 1 Broadway  
Digby 2173

## The Maryland Dry Dock Company

BALTIMORE, MD.

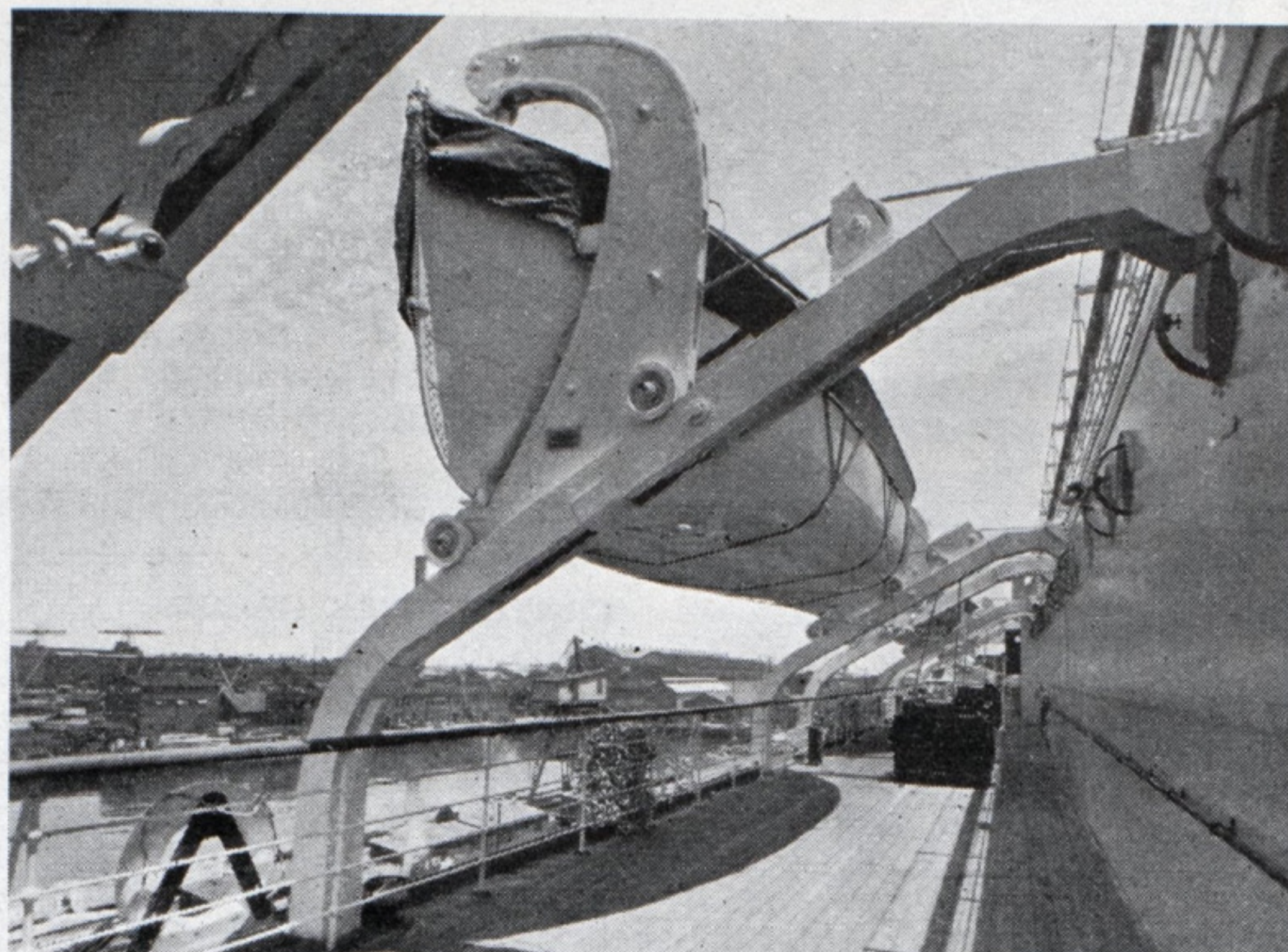
Drydocking, Shipbuilding and Ship Repairs of All Kinds  
The Most Modern Shops in Baltimore 2—9000 Ton Floating Drydocks  
Floating Machine Shop

**DAY and NIGHT SERVICE**

Plant Phones: Curtis 0500 - 0501 - 0502 - 0503



# "Life Saving Equipment by Welin—"



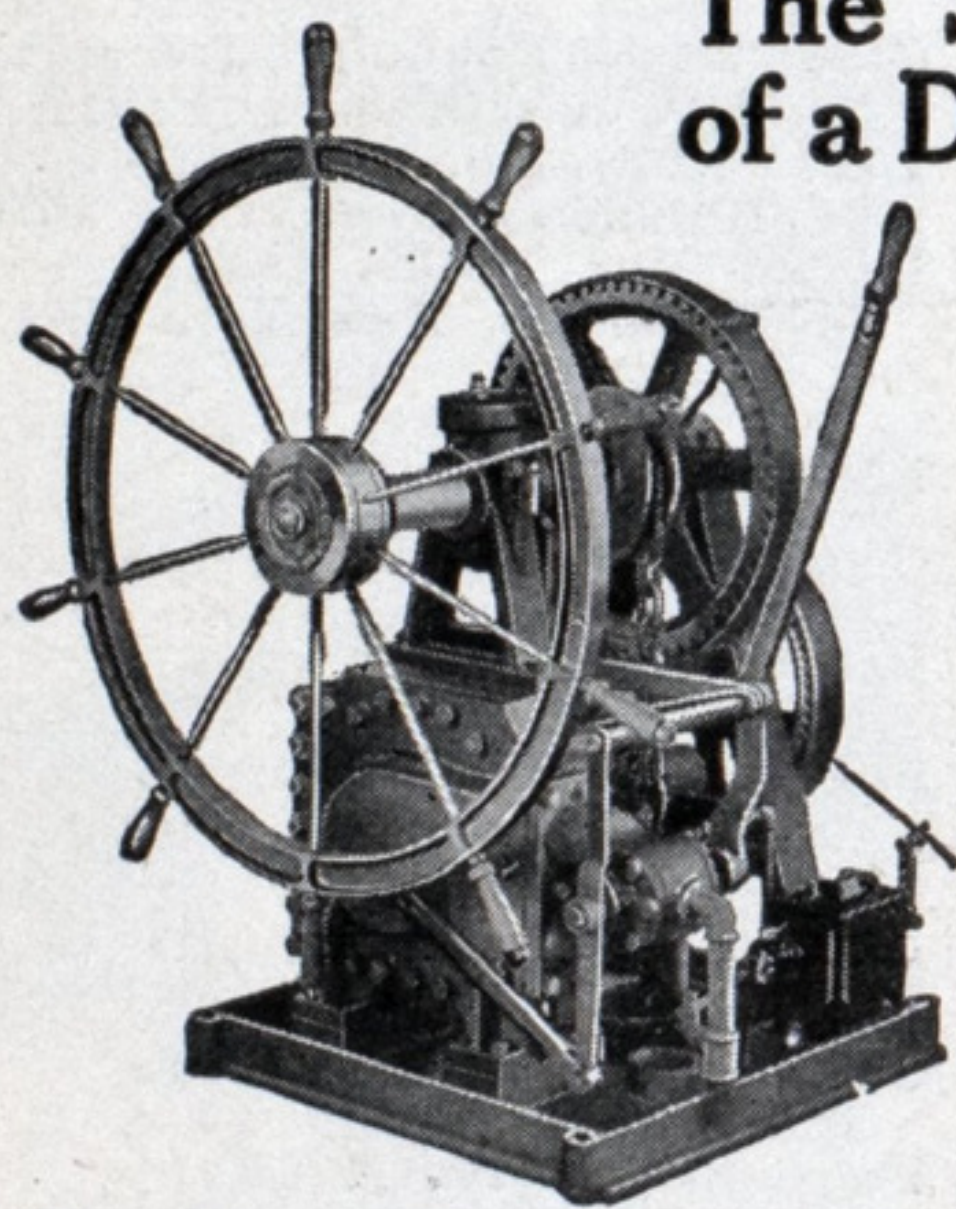
Boat Deck "S. S. President Hoover"

Welin-Maclachlan Gravity Davits, as illustrated above can be readily installed on vessels building or presently in service. These davits are efficient and dependable beyond belief and in addition offer the great advantage of one man control.

## Welin Davit & Boat Corporation

43-64 Vernon Boulevard  
Long Island City, New York

### The Strong, Quick Arm of a DAKE Steering Gear



on the tiller chain of your tug or steamer means greater efficiency, safety and economy.

The Dake engine has no dead center; it is always alert, and starts instantly in either direction. This insures easier, quicker and better handling of your boat and saves time, coal and accidents.

The Dake fits into your pilot house and has a hand steering combination feature for emergency use.

Dependable gears at extremely moderate prices.

*Ask any skipper who is shipmates with one*

**Dake Engine Co., Grand Haven, Mich.**

### On the President Hoover President Coolidge

On most of the outstanding American built ships today, you will find Paracoil Marine Equipment. On the latest Dollar Liners, it's the Paracoil 4-Tier Feed Water Heater.

Paracoil equipment includes feed water heaters, evaporators, distillers, lubricating oil coolers, etc., etc. Write for bulletins.

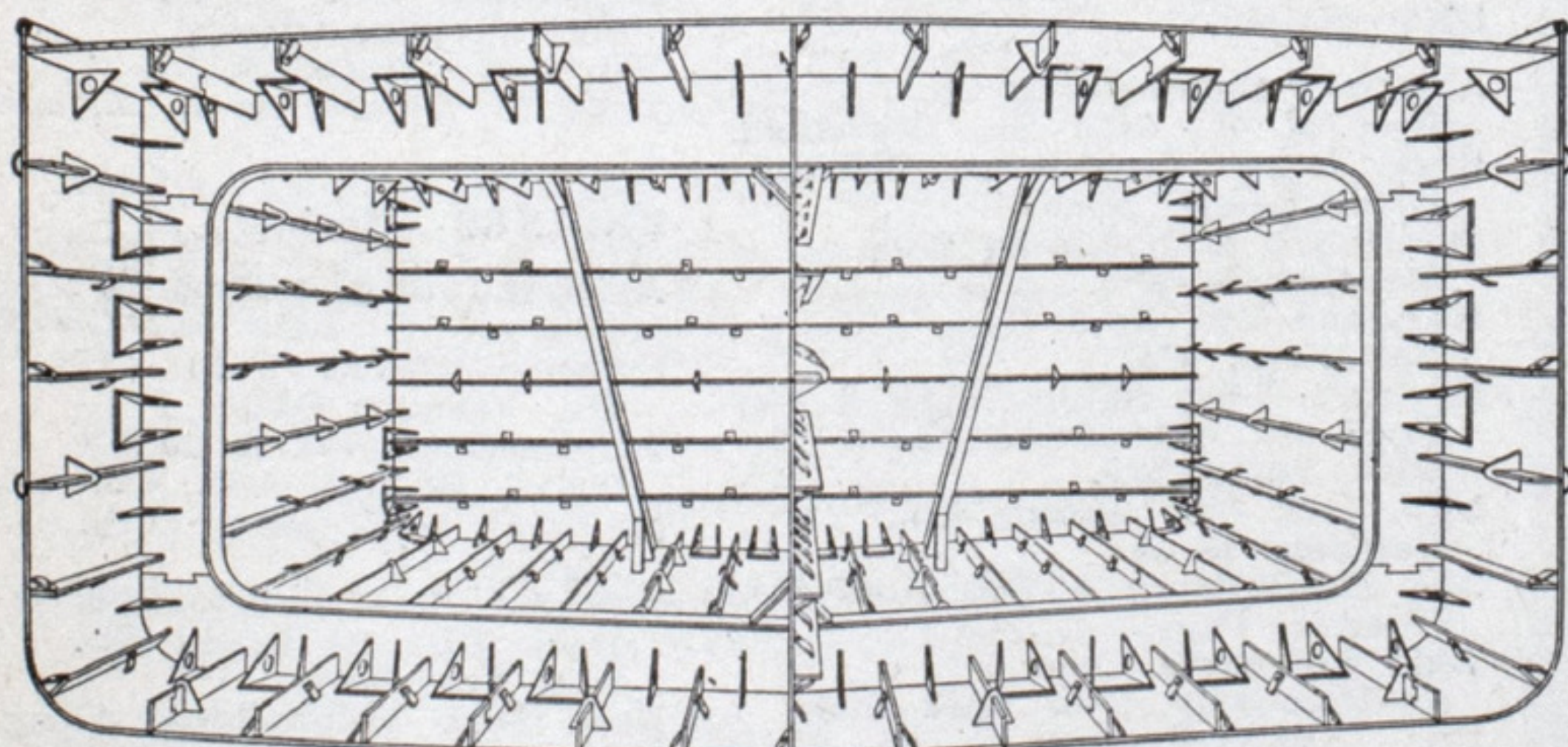
**DAVIS ENGINEERING CORP.**

90 West St.

New York, N. Y.

**Paracoil** **MARINE EQUIPMENT**

## Reduces Construction Costs—Increases Carrying Capacity



Midship Section of Transverse and Bulkhead  
Marine Bollers—Barges—Scows—Lighters General Repairs to Wooden and Steel Vessels—Two Marine Railways

Used in All Types of Ship Construction Including Barges, River Steamers and Dredges Does away entirely with Angles, Shapes, Rivets and Bolts.

**Richard F. Smith**

Patent granted, other patents applied for

**Lock Notch Welded System**

**Charleston Dry Dock & Machine Company  
Charleston, S. C.**

Licensee for Smith System—Correspondence invited with Shipyards desiring to construct Vessels on this System—Reasonable Royalties.



# "Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. Index to advertisements will give you page number of any advertiser and by referring to advertisement you can get full particulars about products.

## AIR PREHEATERS

Babcock & Wilcox Co., The,  
85 Liberty St., New York City.

## ANCHORS

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.

## ARMOR (Submarine)

Morse, Andrew J., & Son, Inc.,  
221 High St., Boston, Mass.

## BABBITT METAL

Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

## BARGES (Steel)

Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.

## BATTERIES

Electric Storage Battery Co., The,  
19th and Allegheny Sts.,  
Philadelphia.

## BEARING (Rubber)

Goodrich, B. F., Rubber Co.,  
Akron, O.

## BINNACLES

Ritchie, E. S., & Sons,  
Brookline, Mass.

## BLOWERS (Flue)

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland, O.

## BLOWERS (Motor Driven Ventilation)

Sturtevant, B. F., Co.,  
Hyde Park, Boston, Mass.

## BLOWERS (Turbine Driven)

Westinghouse Elec. & Mfg. Co.,  
S. Philadelphia, Pa.

## BOATS (Steel and Wood)

Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.

## BOILERS (Marine)

Almy Water Tube Boiler Co.,  
184 Allen St., Providence, R. I.  
American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland, O.  
Babcock & Wilcox Co.,  
85 Liberty St., New York City.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.  
Oldman-Magee Boiler Works, Inc.,  
36-40 Illinois St., Buffalo, N. Y.  
Sun Shipbuilding & Dry Dock Co.,  
Chester, Pa.

## BOILERS (Water Tube)

Almy Water Tube Boiler Co.,  
184 Allen St., Providence, R. I.

Babcock & Wilcox Co., The,  
85 Liberty St., New York City.

## BOOKS (Technical)

Penton Publishing Co., Cleveland, O.

## BRAKES (Electric)

Cutler-Hammer, Inc.,  
1265 St. Paul Avenue,  
Milwaukee, Wis.

## BROKERS (Vessel)

Boland & Cornelius,  
Marine Trust Bldg., Buffalo, N. Y.  
Farley, Edward P., & Co., Inc.,  
11 Broadway, New York City.

## BUNKER FUEL OIL—See FUEL OIL

## BURNERS (Oil)—See OIL BURNING EQUIPMENT

## CABLES

Columbian Rope Co., Auburn, N. Y.  
Whitlock Cordage Co.,  
46 South St., New York City.

## CALKING COTTON

Stratford, Geo., Oakum Co.,  
120 Montgomery St.,  
Jersey City, N. J.

## CAPSTANS

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.  
Dake Engine Co.,  
Grand Haven, Mich.  
Hyde Windlass Co., Bath, Me.

## CASTINGS

Great Lakes Engineering Works,  
River Rouge, Mich.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.

## CHANDLERY

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.

## CIRCUIT BREAKERS (Steel Enclosed)

I. T. E. Circuit Breaker Co.,  
19th & Hamilton St.,  
Philadelphia, Pa.

## COMPASSES

Ritchie, E. S., & Sons,  
Brookline, Mass.

## COMPASSES (Gyro)

Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

## CONDENSERS

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

## CONTROLLERS (Electric)

Cutler-Hammer, Inc.,  
1265 St. Paul Avenue,  
Milwaukee, Wis.

## CONVEYERS (Portable)

Clark Trutractor Co.,  
Battle Creek, Mich.

## CORDAGE

Columbian Rope Co., Auburn, N. Y.  
Samson Cordage Works,  
Boston, Mass.  
Whitlock Cordage Co.,  
46 South St., New York City.

## DAVITS

Welin Davit & Boat Corp.,  
43-64 Vernon Blvd.,  
Long Island City, N. Y.

## DECKING COVERING

Asbestolith Mfg. Co.,  
1 Madison Ave., New York City.

## DIESEL ENGINES—See ENGINES (Diesel)

## DIESEL FUEL OIL—See FUEL OIL

## DISTILLING APPARATUS

Griscom-Russell Co.,  
285 Madison Ave., New York City.

## DIVING APPARATUS

Morse, Andrew J., & Son, Inc.,  
221 High St., Boston, Mass.

## DRAFT (Artificial and Mechanical for Boilers)

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Sturtevant, B. F., Co.,  
Hyde Park, Boston, Mass.

## DREDGING MACHINERY

Great Lakes Engineering Works,  
River Rouge, Mich.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

## DRY DOCKS

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Manitowoc Shipbuilding Corp.,  
Manitowoc, Wis.  
Maryland Dry Dock Co.,  
Baltimore, Md.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.  
New York Shipbuilding Co.,  
Camden, N. J.  
Sun Shipbuilding & Dry Dock Co.,  
Chester, Pa.  
Todd Shipyards Corp.,  
25 Broadway, New York City.

## DYNAMOS

General Electric Co.,  
Schenectady, N. Y.

Troy Engine & Machine Co.,  
Troy, Pa.  
Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

## ECONOMIZERS

Babcock & Wilcox Co., The,  
85 Liberty St., New York City.

## EJECTORS (Ash)

Great Lakes Engineering Works,  
River Rouge, Mich.  
Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

## ELECTRICAL EQUIPMENT

I. T. E. Circuit Breaker Co.,  
19th & Hamilton St.,  
Philadelphia, Pa.

## ENGINE SPEED INDICATORS

Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

## ENGINEERS (Marine, Mechanical and Consulting)

Crandall Engineering Co., The,  
134 Main St., Cambridge, Mass.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Todd Shipyards Corp.,  
25 Broadway, New York City.  
United Dry Docks, Inc.,  
11 Broadway, New York City.

## ENGINES

Cooper-Bessemer Corp., The,  
Mt. Vernon, Ohio.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
Sun Shipbuilding & Dry Dock Co.,  
Chester, Pa.

## ENGINES (Diesel)

Cooper-Bessemer Corp., The,  
Mt. Vernon, Ohio.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
McIntosh & Seymour Corp.,  
Auburn, N. Y.  
Sun Shipbuilding & Dry Dock Co.,  
Chester, Pa.

## ENGINES (Internal Combustion)

Cooper-Bessemer Corp., The,  
Mt. Vernon, Ohio.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.

## ENGINES (Marine)

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.  
Cooper-Bessemer Corp., The,  
Mt. Vernon, Ohio.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
McIntosh & Seymour Corp.,  
Auburn, N. Y.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.  
New York Shipbuilding Co.,  
Camden, N. J.  
Sturtevant, B. F., Co., Inc.,  
Hyde Park, Boston, Mass.  
Sun Shipbuilding & Dry Dock Co.,  
Chester, Pa.





**WHITLOCK CORDAGE COMPANY**

46 South Street, New York



**TRAVEL**

*Via*

**Lake Erie**

**New Low Fares  
and Auto Rates**

**Between CLEVELAND and BUFFALO**

May 1st to Nov. 1st, leaving, each way at 9:00 P. M.,  
arriving 7:30 A. M. (E. S. T.)

**\$4.50 One Way    :-:    \$7.50 Round Trip**

*Autos carried to June 15th and after Sept. 15th,  
\$5.00 any size car. Summer rates, only  
\$6.50 and \$7.50*

**Between CLEVELAND and PORT STANLEY, CANADA**

June 27th to Sept. 9th. Leave Cleveland at 11:59 P. M.  
arrive Port Stanley 6:00 A. M. Leave there 4:30 P. M.  
arrive Cleveland 9:30 P. M.

**\$3.00 One Way    :-:    \$5.00 Round Trip**

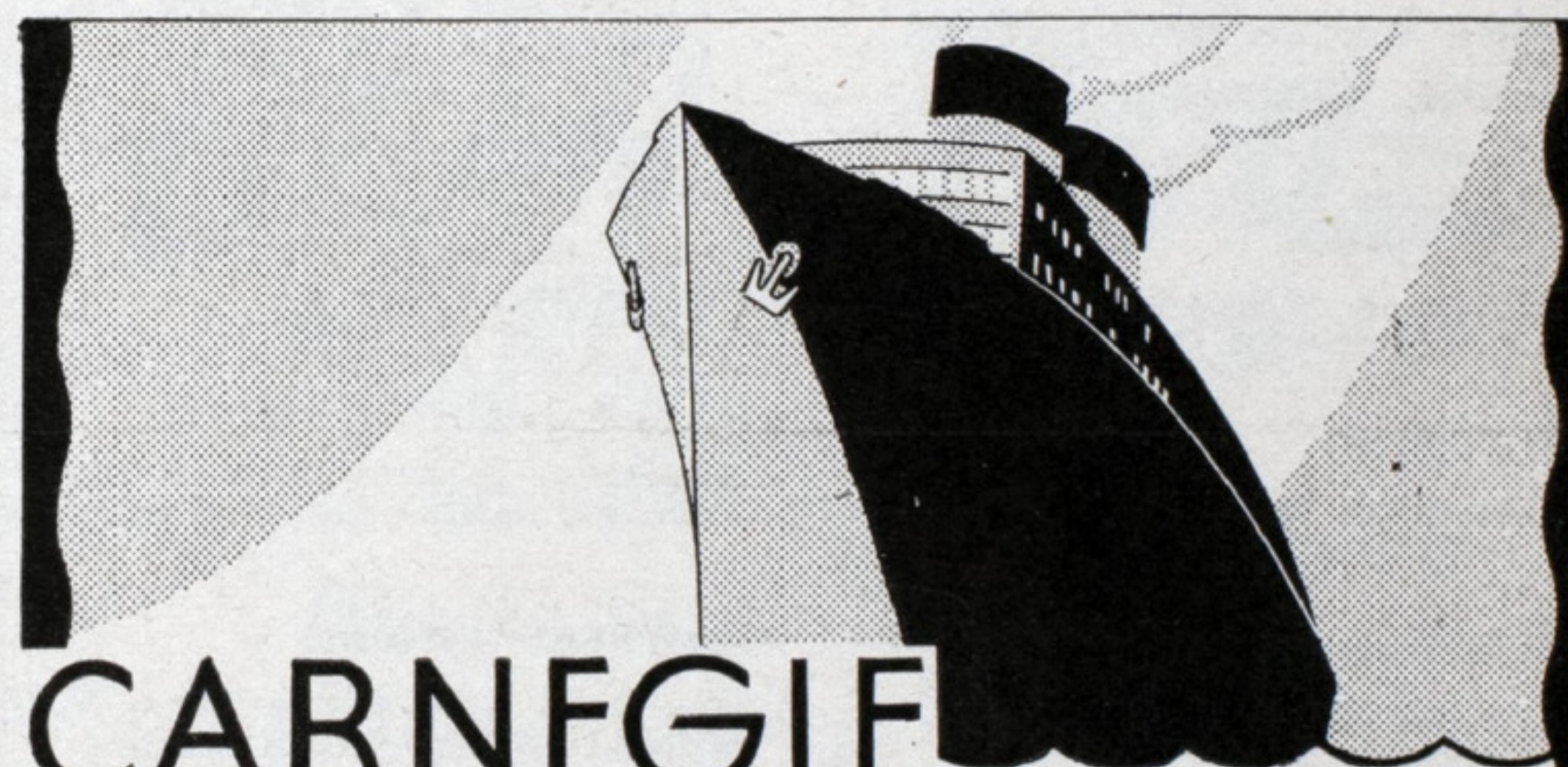
**Autos Carried, \$4.50 up**

*Write us or ask your local Ticket or Tourist Agent for our new  
32-page illustrated Vacation Booklet, on All-Expense Tours*

**The Cleveland and Buffalo Transit Co.**

East 9th Street Pier

Cleveland, Ohio



**CARNEGIE  
SHIP BUILDING  
PRODUCTS**

A complete line of structural steel sections for shipbuilding purposes, including Carnegie Beams with their wide, parallel flanges, shipbuilding channels and bulb angles, Carnegie Floor Plate in a raised pattern insuring long wear and easy cleaning, and rolled steel plates of every description.

The name "Carnegie" has been identified with steel manufacture for nearly three-quarters of a century—a good name to look for on Steel.

**CARNEGIE STEEL COMPANY**

*Subsidiary of United States Steel Corporation*

**PITTSBURGH, PA.**

62



**ENGINES (Marine) Cont.**

Todd Shipyards Corp.,  
25 Broadway, New York City.  
United Dry Docks Inc.,  
11 Broadway, New York City.

**ENGINES (Oil)**

Cooper-Bessemer Corp., The,  
Mt. Vernon, Ohio.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
Sun Shipbuilding & Dry Dock Co.,  
Chester, Pa.

**ENGINES (Steam, Steering)**

Dake Engine Co.,  
Grand Haven, Mich.

**ENGINES (Vertical,  
Enclosed, Self Oiling)**

Troy Engine & Machine Co.,  
Troy, Pa.

**EUROPEAN STEAMSHIP LINES  
(Passenger and Freight)**

Hamburg-American Line,  
39 Broadway, New York City.

**EVAPORATORS**

Griscom-Russell Co.,  
285 Madison Ave., New York City.

**FANS**

Diehl Mfg. Co.,  
Elizabethport, N. J.

**FANS (Electric)**

General Electric Co.,  
Schenectady, N. Y.  
Sturtevant, B. F., Co.,  
Hyde Park, Boston, Mass.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**FEED WATER HEATERS—See  
HEATERS AND PURIFIERS  
(Feed Water)****FEED WATER REGULATORS**

Babcock & Wilcox Co.,  
85 Liberty St., New York City.

**FIRE BRICK**

Babcock & Wilcox Co., The,  
85 Liberty St., New York City.

**FLOORING**

Asbestolith Mfg. Co.,  
1 Madison Ave., New York City.

**FLOOR PLATES**

Carnegie Steel Co.,  
Carnegie Bldg., Pittsburgh, Pa.

**FOUNDERS**

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland, O.  
New York Shipbuilding Co.,  
Camden, N. J.

**FREIGHT SERVICE**

Hamburg-American Line,  
39 Broadway, New York City.

**FUEL OIL**

Vacuum Oil Co.,  
61 Broadway, New York City.

**GAGES (Water)**

Jerguson Gage & Valve Co.,  
Somerville, Mass.

**GALLEY RANGES**

Stamford Foundry Co.,  
Stamford, Conn.

**GEARS (Electric)**

General Electric Co.,  
Schenectady, N. Y.

**GEARS (Marine Equipment)**

Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

**GENERATING SETS**

Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
General Electric Co.,  
Schenectady, N. Y.  
Troy Engine & Machine Co.,  
Troy, Pa.

**GENERATING SETS (Direct Con-  
nected)**

Sturtevant, B. F., Co.,  
Hyde Park, Boston, Mass.  
Troy Engine & Machine Co.,  
Troy, Pa.  
Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

**GENERATORS**

Diehl Mfg. Co.,  
Elizabethport, N. J.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
General Electric Co.,  
Schenectady, N. Y.  
Troy Engine & Machine Co.,  
Troy, Pa.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**GOVERNORS**

Cory, Chas., Corp.,  
68 King St., New York City.

**GREASE**

Vacuum Oil Co.,  
61 Broadway, New York City.

**GREASE (Launching)**

Vacuum Oil Co.,  
61 Broadway, New York City.

**GYPSEYS**

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.

**GYRO-PILOT (Automatic Steer-  
ing)**

Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

**HATCH COVERS (Steel)**

MacGregor & King, Ltd., 5 Lloyd's  
Ave., London, E.C.3, Eng.

**HAWSERS (Manila)**

Columbian Rope Co., Auburn, N. Y.  
Samson Cordage Works, Boston.  
Whitlock Cordage Co.,  
46 South St., New York City.

**HEATERS (Electric)**

Superior Mfg. Co., The,  
Gragg St., Carnegie, Pa.

**HEATERS AND PURIFIERS  
(Feed Water)**

Davis Engineering Co.,  
90 West St., New York City.  
Griscom-Russell Co.,  
285 Madison Ave., New York City.  
Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

**HEATING EQUIPMENT**

Sturtevant, B. F., Co.,  
Hyde Park, Boston, Mass.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**HEATING STOVES**

Stamford Foundry Co.,  
Stamford, Conn.

**HOISTING ENGINES**

Hyde Windlass Co., Bath, Me.

**HOISTS (Air)**

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.

**HOISTS (Electric, Pneumatic,  
Hand)**

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.

**ICE MACHINES—See  
REFRIGERATING MACHINERY****INDICATORS (Direction & Revolu-  
tion)**

Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

**INDICATORS (Helm Angle)**

Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

**INDICATORS (Speed)**

Cory, Chas., Corp.,  
68 King St., New York City.  
Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

**INTERIOR DECORATORS**

Marten, A. F., Co., 1501 Sutter St.,  
San Francisco, Cal.

**INSURANCE (Marine)**

Boland & Cornelius,  
Marine Trust Bldg., Buffalo, N. Y.

**LAMPS (Mazda and Arc)**

General Electric Co.,  
Schenectady, N. Y.

**LIFEBOATS**

Lane, C. M., Lifeboat Co., Inc.,  
856 Humboldt St., Brooklyn, N. Y.  
Welin Davit & Boat Corp.,  
43-64 Vernon Blvd.,  
Long Island City, N. Y.

**LIFESAVING EQUIPMENT**

Lane, C. M., Lifeboat Co., Inc.,  
856 Humboldt St., Brooklyn, N. Y.

**LIGHTING EQUIPMENT**

Cory, Chas., Corp.,  
68 King St., New York City.  
General Electric Co.,  
Schenectady, N. Y.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**LUBRICATING OIL**

Vacuum Oil Co.,  
61 Broadway, New York City.

**MACHINERY (Marine)**

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland, O.  
Bethlehem Shipbuilding Corp., Ltd.,  
Bethlehem, Pa.  
Cooper-Bessemer Corp., The,  
Mt. Vernon, Ohio.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Manitowoc Shipbuilding Corp.,  
Manitowoc, Wis.  
Maryland Dry Dock Co.,  
Baltimore, Md.

**MACHINISTS**

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland, O.  
New York Shipbuilding Co.,  
Camden, N. J.

**MAGNETS (Lifting)**

Cutler-Hammer, Inc.,  
1265 St. Paul Avenue,  
Milwaukee, Wis.

**MANILA OAKUM—See OAKUM  
(Marine, Rope, Packings,  
Plumbers)****MARINE RAILWAY BUILDERS**

Crandall Engineering Co., The,  
134 Main St., Cambridge, Mass.

**METERS (Gas & Air)**

Cutler-Hammer, Inc.,  
1265 St. Paul Avenue,  
Milwaukee, Wis.

**MOTOR GENERATOR SETS**

Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
General Electric Co.,  
Schenectady, N. Y.  
Troy Engine & Machine Co.,  
Troy, Pa.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**MOTORS**

Diehl Mfg. Co.,  
Elizabethport, N. J.

**MOTORS (Electric)**

Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
General Electric Co.,  
Schenectady, N. Y.  
Troy Engine & Machine Co.,  
Troy, Pa.  
Westinghouse Electric & Mfg. Co.,  
East Pittsburgh, Pa.

**NAUTICAL INSTRUMENTS**

Ritchie, E. S., & Sons,  
Brookline, Mass.  
Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

**NAVIGATING INSTRUMENTS**

White, Kelvin & Wilfrid O., Co.,  
112 State St., Boston, Mass.

**OAKUM (Marine, Rope, Packing,  
Plumbago)**

Stratford, Geo., Oakum Co.,  
120 Montgomery St.,  
Jersey City, N. J.

**OIL BURNING EQUIPMENT**

Babcock & Wilcox Co.,  
85 Liberty St., New York City.  
Coen Co., Inc., 610 S. Broadway,  
Los Angeles, Cal.  
Sturtevant, B. F., Co.,  
Hyde Park, Boston, Mass.

**OIL CLARIFIERS**

Sharples Specialty Co.,  
Westmoreland, Philadelphia, Pa.

**OIL FOR ALL PURPOSES  
(Marine)**

Vacuum Oil Co., 61 Broadway,  
New York City.

**OIL PURIFIERS**

Sharples Specialty Co.,  
Westmoreland, Philadelphia, Pa.

**PASSENGER SERVICE**

Hamburg-American Line,  
39 Broadway, New York City.

**POWDERED COAL BURNERS**

Coen Co., Inc., 610 S. Broadway,  
Los Angeles, Cal.

**PROPELLER BLADES AND HUBS**

Sheriffs Mfg. Co., Milwaukee, Wis.

**PROPELLER WHEELS**

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland, O.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.  
Sheriffs Mfg. Co., Milwaukee, Wis.

**PROPELLERS**

Hyde Windlass Co., Bath, Me.  
Newport News Shipbuilding & Dry-  
Dock Co., 90 Broad St.,  
New York City.

**PULVERIZED COAL BURNERS**

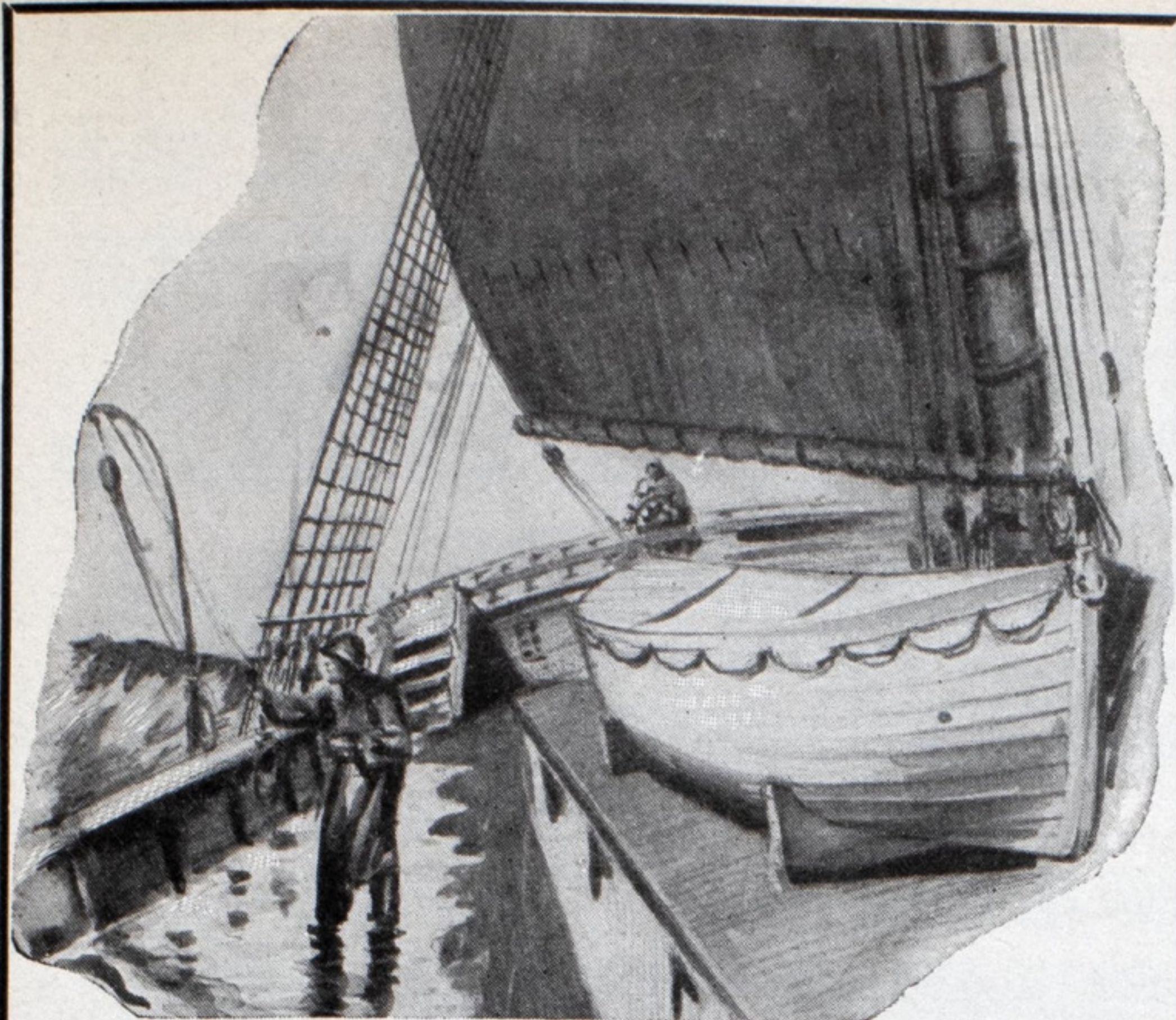
Todd Shipyards Corp.,  
25 Broadway, New York City.

**PULVERIZED COAL SYSTEMS**

Todd Shipyards Corp.,  
25 Broadway, New York City.

See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above





*"Then Ho for the swash of the briny wash"*

In heavy weather, a tight deck is just as important as tight seams. Poor deck caulking means ruined cargoes, wet sleeping quarters, food spoilage and many annoyances.

Caulk your deck with

## STRATFORD OAKUM

Make it as tight as your garboard.

Stratford Oakum is the world's best. It is the most economical to use. It takes less labor to caulk or spin, and "stays put" whether in bottom, side or deck. Stratford Oakum is well finished, well tarred, clean and elastic enough to keep the seam tight always.

*Be sure to use Stratford Oakum.*

**George Stratford Oakum Company**  
Jersey City, New Jersey

*Also Manufacturers of Cotton Wiping Waste*

\*4

## SAMSON SPOT Log Lines

Smooth, tough and durable; no adulterating material to stiffen it and decrease strength and durability. Solid braided of extra quality cotton yarn. Uniform in size and quality. Easily identified by the colored spots, our trade mark.

We also manufacture flag halyards, lead lines, tiller rope; solid braided cotton cord in all sizes for various marine uses. Ask for catalog and samples.



Trade Mark  
Reg. U.S.  
Pat. Off.



## SAMSON CORDAGE WORKS

89 BROAD STREET

BOSTON, MASS.



## Propeller Wheels and Blades

*to fit any hub.*

**Sheriffs Manufacturing Co.**

Established 1854  
Milwaukee, Wis.

## Oldman-Magee Boiler Works, Inc.

Boilers, Tanks, Stacks, Structural Work and Castings

Boiler Repairing Promptly Attended to Day or Night

MARINE WORK A SPECIALTY

ELECTRIC WELDING

Works: 36-40 Illinois Street

BUFFALO, N. Y.

## Star Brass Mfg. Co.

53 Oliver Street -:- Boston, Mass.

MANUFACTURERS OF

Accurate "Non-corrosive" Pressure and Recording Gauges, Revolution Counters, Marine Clocks.

Dead Weight Gage Testers.

Marine, Safety and Relief Valves for all pressures.

Marine Whistles and Sirens.

Extra Heavy Renewable Globe, Angle and Check Valves.

Star Outside Spring Steam Engine Indicators.

HIGH GRADE THROUGHOUT  
SPECIFY AND ORDER THE BEST.

Branches: CHICAGO PITTSBURGH NEW YORK

## DEAN BROS. MARINE PUMPS

*"The Dean of Pumps  
on Land and Sea"*

Single Style & Duplex  
Piston Type & Plunger

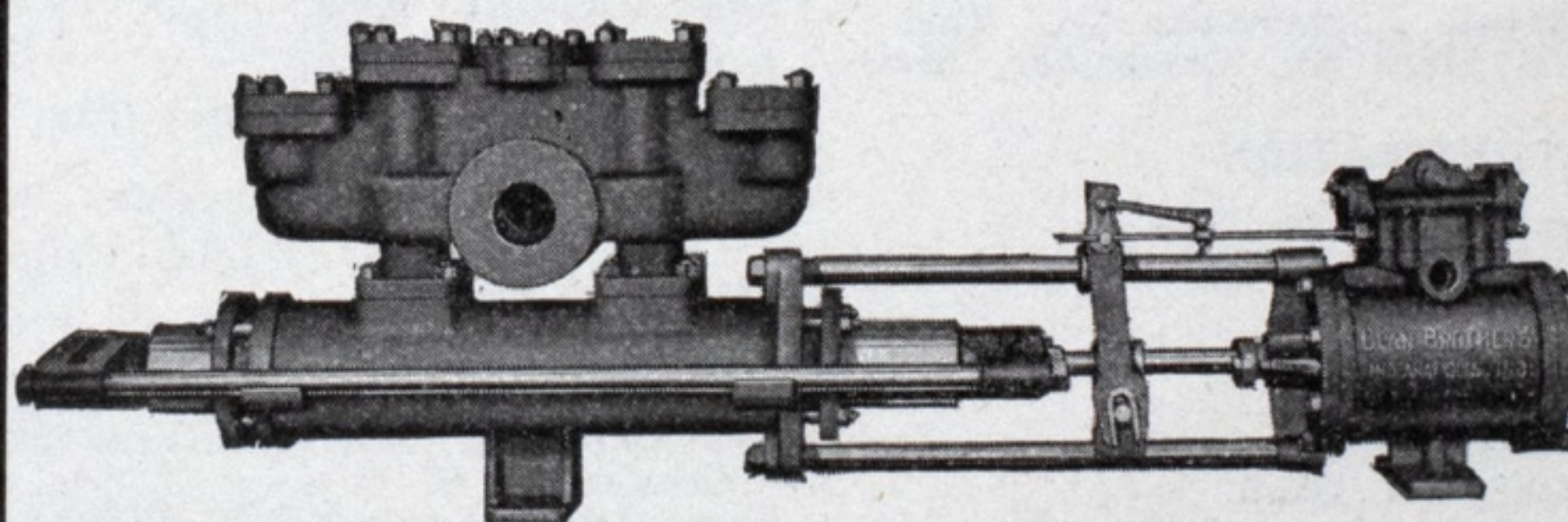


Figure No. 2311 Horizontal Single Style Double Acting Outside End Packed Plunger Trombone Pot Valve Pump For Boiler Feed & Pressure Service.

ESTABLISHED 1869

## DEAN BROS. COMPANY

MANUFACTURERS OF PUMPING MACHINERY FOR ALL PURPOSES

323 WEST TENTH ST.

**INDIANAPOLIS IND.**



**PUMPS**

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Warren Steam Pump Co., Inc.,  
Warren, Mass.

**PUMPS (Ballast)**

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.  
Warren Steam Pump Co., Inc.,  
Warren, Mass.

**PUMPS (Bilge)**

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
Warren Steam Pump Co., Inc.,  
Warren, Mass.

**PUMPS (Boiler Feed)**

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
Warren Steam Pump Co., Inc.,  
Warren, Mass.

**PUMPS (Direct Acting)**

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.

**PUMPS (Fuel Oil)**

Coen Co., Inc., 610 S. Broadway,  
Los Angeles, Cal.

**PUMPS (Power)**

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.

**PUMPS (Steam)**

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.  
Fairbanks, Morse & Co.,  
900 S. Wabash Ave., Chicago, Ill.  
Warren Steam Pump Co., Inc.,  
Warren, Mass.

**PUMPS (Vacuum)**

Dean Brothers Co.,  
323 W. 10th St., Indianapolis, Ind.

**PURIFICATION SYSTEMS—See  
WATER PURIFICATION  
SYSTEMS****PURIFIERS (Oil)**

Sharples Specialty Co.,  
Westmoreland, Philadelphia, Pa.

**RAFTS**

Lane, C. M., Lifeboat Co., Inc.,  
856 Humboldt St.,  
Brooklyn, N. Y.

**RAILWAY DRY DOCKS**

Crandall Engineering Co., The,  
134 Main St., Cambridge, Mass.

**REFRIGERATION**

Frigidaire Corp., The,  
3rd National Bank Bldg.,  
Dayton, Ohio.

**RANGES**

Stamford Foundry Co.,  
Stamford, Conn.

**REPAIRS**

Maryland Dry Dock Co.,  
Baltimore, Md.

**REPAIRS (Electric)**

General Electric Co.,  
Schenectady, N. Y.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**REPAIRS (Marine)**

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.  
Charleston Dry Dock & Machine Co.,  
Charleston, S. C.  
Chicago Shipbuilding Co.,  
So. Chicago, Ill.  
Great Lakes Engineering Works,  
River Rouge, Mich.

**Manitowoc Ship Building Corp.,**

Manitowoc, Wis.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.  
New York Shipbuilding Co.,  
Camden, N. J.  
Sun Shipbuilding & Dry Dock Co.,  
Chester, Pa.  
Todd Shipyards Corp.,  
25 Broadway, New York City.  
United Dry Docks, Inc.,  
11 Broadway, New York City.

**REPAIRS (Turbine)**

General Electric Co.,  
Schenectady, N. Y.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**REVOLUTION COUNTERS**

Sperry Gyroscope Co.,  
Brooklyn, N. Y.

**ROPE (Manila, Net, Sisal, and  
Other Hard Fiber Cordage)**

Columbian Rope Co., Auburn, N. Y.  
Samson Cordage Works, Boston.  
Whitlock Cordage Co.,  
46 South St., New York City.

**ROPE (Transmission)**

Columbian Rope Co.,  
Auburn, N. Y.

**ROPE OAKUM**

Stratford, Geo., Oakum Co.,  
120 Montgomery St.,  
Jersey City, N. J.

**RUST PREVENTATIVE (Oil)**

Vacuum Oil Co., 61 Broadway,  
New York City.

**SAFETY VALVES (Marine)**

Star Brass Mfg. Co.,  
53 Oliver St., Boston, Mass.

**SCHOONERS (Auxiliary)**

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.

**SEARCHLIGHTS**

General Electric Co.,  
Schenectady, N. Y.

**SEARCHLIGHTS (High Intensity)**

Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

**SEARCHLIGHTS  
(Incandescent and Arc)**

Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

**SEPARATORS (Oil)**

Babcock & Wilcox Co.,  
85 Liberty St., New York City.  
Sharples Specialty Co.,  
Westmoreland, Philadelphia, Pa.

**SHIPBUILDERS**

American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.  
Charleston Dry Dock & Machine Co.,  
Charleston, S. C.  
Great Lakes Engineering Works,  
River Rouge, Mich.  
Manitowoc Ship Building Corp.,  
Manitowoc, Wis.  
Maryland Dry Dock Co.,  
Baltimore, Md.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.  
New York Shipbuilding Co.,  
Camden, N. J.  
Sun Shipbuilding & Dry Dock Co.,  
Chester, Pa.  
Todd Shipyards Corp.,  
25 Broadway, New York City.  
United Dry Docks, Inc.,  
11 Broadway, New York City.

**SHIPBUILDING SYSTEMS**

Isherwood, J. W., & Co., Ltd.,  
17 Battery Place, New York City.

**SHIP STABILIZERS**

Sperry Gyroscope Co., The,  
Brooklyn, N. Y.

**SPUN OAKUM**

Stratford, Geo., Oakum Co.,  
120 Montgomery St.,  
Jersey City, N. J.

**STEAMSHIP LINES**

(Passenger and Freight)

Hamburg-American Lines,  
39 Broadway, New York City.

**STEAM GAGES**

Star Brass Mfg. Co.,  
53 Oliver St., Boston, Mass.

**STEAMSHIP COMPANIES (Lake  
Passenger & Freight)**

Cleveland & Buffalo Transit Co.,  
The, E. 9th St. Pier, Cleveland.

**STEAM TRAPS**

Davis Engineering Co.,  
90 West St., New York City.

**STEEL BARGES—See BARGES  
(Steel)****STEERING ENGINES**

Hyde Windlass Co., Bath, Me.

**STEERING GEARS**

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.  
American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.  
Hyde Windlass Co., Bath, Me.

**STOKERS**

Babcock & Wilcox Co., The,  
85 Liberty St., New York City.

**STORAGE BATTERIES—See  
BATTERIES****STOVES**

Stamford Foundry Co.,  
Stamford, Conn.

**STRAINERS (Oil)**

Coen Co., Inc., 610 S. Broadway,  
Los Angeles, Cal.

**SUPERHEATERS**

Babcock & Wilcox Co., The,  
85 Liberty St., New York City.

**SWITCHBOARDS**

General Electric Co.,  
Schenectady, N. Y.  
I. T. E. Circuit Breaker Co.,  
19th & Hamilton St.,  
Philadelphia, Pa.  
Troy Engine & Machine Co.,  
Troy, Pa.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**TELEGRAPH (Electrical,  
Mechanical)**

Cory, Chas., Corp.,  
68 King St., New York City.

**TELEMOTORS**

Hyde Windlass Co., Bath, Me.

**TELEMOTORS (Hydraulic &  
Electric)**

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.

**TELEPHONE SYSTEMS**

Cory, Chas., Corp.,  
68 King St., New York City.

**TOWING & MOORING ENGINES**

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.

**TOWING LINES**

Columbian Rope Co., Auburn, N. Y.  
Whitlock Cordage Co.,  
46 South St., New York City.

**TRACTORS**

Clark Tractor Co.,  
Battle Creek, Mich.  
Elwell-Parker Electric Co., The,  
4205 St. Clair Ave., Cleveland, O.

**TRANSMISSION (Rope)—See  
ROPE (Transmission)****TRUCKS**

Clark Tractor Co.,  
Battle Creek, Mich.  
Elwell-Parker Electric Co., The,  
4205 St. Clair Ave., Cleveland, O.

**TRUCKS (Dump)**

Clark Tractor Co.,  
Battle Creek, Mich.

**TURBINES (Electric)**

Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

**TURBINES (Marine)**

General Electric Co.,  
Schenectady, N. Y.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.  
Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

**TURBINES (Steam)**

DeLaval Steam Turbine Co.,  
Trenton, N. J.  
General Electric Co.,  
Schenectady, N. Y.  
Newport News Shipbuilding & Dry  
Dock Co., 90 Broad St.,  
New York City.  
Sturtevant, B. F., Co.,  
Hyde Park, Boston, Mass.  
Westinghouse Electric & Mfg. Co.,  
So. Philadelphia, Pa.

**TWINE AND ROPE**

Columbian Rope Co., Auburn, N. Y.  
Samson Cordage Works, Boston.  
Whitlock Cordage Co.,  
46 South St., New York City.

**VENTILATING EQUIPMENT**

Sturtevant, B. F., Co.,  
Hyde Park, Boston, Mass.

**WATER COOLERS**

Frigidaire Corp., The, 3rd National  
Bank Bldg., Dayton, O.  
General Electric Co.,  
Schenectady, N. Y.

**WATER PURIFICATION  
SYSTEMS**

Griscom-Russell Co.,  
285 Madison Ave., New York City.

**WELDERS (Electric Arc)**

General Electric Co.,  
Schenectady, N. Y.  
Westinghouse Electric & Mfg. Co.,  
S. Philadelphia, Pa.

**WHISTLES**

Star Brass Mfg. Co.,  
53 Oliver St., Boston, Mass.

**WINCHES**

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.  
Dake Engine Co.,  
Grand Haven, Mich.  
Hyde Windlass Co., Bath, Me.

**WINDLASSES**

American Engineering Co., The,  
Cumberland & Aramingo Sts.,  
Philadelphia, Pa.  
American Shipbuilding Co.,  
Foot of W. 54th St., Cleveland.  
Dake Engine Co.,  
Grand Haven, Mich.  
Hyde Windlass Co., Bath, Me.

**WINDOWS (Balanced Frameless)**

Kearfoot Engineering Co.,  
117 Liberty St., New York City.

**WORKBOATS**

Lane, C. M., Lifeboat Co., Inc.,  
856 Humboldt St., Brooklyn.

See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above



**On S. S. President Hoover  
President Coolidge--over 100,000 Sq. Ft. Each  
of ASBESTOLITH Decking**

Asbestolith is the ideal flooring for wood, steel, or cement decks. IT PRESERVES, PROTECTS AND INSULATES—IS SANITARY AND RESILIENT. Over 1000 vessels as reference—also 6000 buildings of all classes.



**ASBESTOLITH MANUFACTURING COMPANY**

1 MADISON AVENUE, NEW YORK, N. Y.

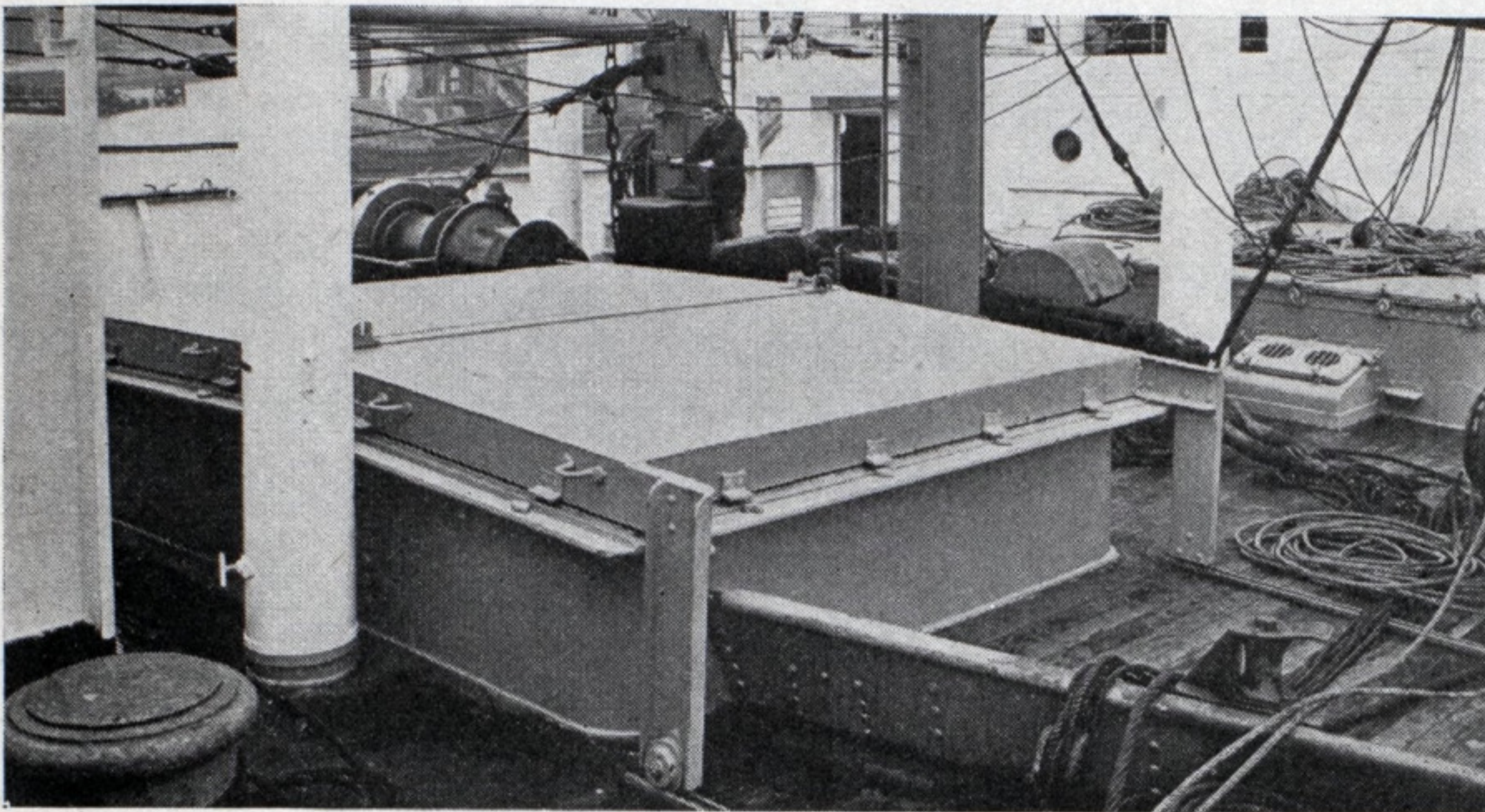
R. C. Burnside, Pres.

Established 34 years.

Approved by American  
Bureau of Shipping



Telephone Ashland  
4-2140-2141



**“MACANKING”  
STEEL HATCH COVERS**

For weather decks and tween decks

*Strong as the deck.*

*Opened by 2 men in 2 minutes.*

*No upkeep and renewals.*

T.S.S. “GENERAL VON STEUBEN” (ex Munchen)

“MACANKING” Covers can be arranged:—

1. To roll to sides as cargo platforms.
2. To roll and pivot to ends leaving decks clear.

**MACGREGOR & KING, LTD.**  
5, LLOYD'S AVENUE, LONDON, E.C.3., ENGLAND

**Ship For Sale?**

If you have a passenger ship, freighter, tanker, tug or any other floating property or marine equipment for sale advertise it in Marine Review.

The rate is \$3.00 for a minimum advertisement of 30 words. Additional words, 10c each.



# Classified Advertisements

## For Sale and Miscellaneous—Help and Positions Wanted

For Sale and Miscellaneous Advertisements  
10c per word—minimum advertisements—\$3.00

Six words must be added for box address.

To insure insertion, advertisements must reach us by the  
10th of the month preceding date of issue.

Help Wanted Advertisements  
6c per word—minimum advertisement—\$3.00

Position Wanted Advertisements  
4c per word—minimum advertisement—\$1.00

Please have remittance accompany order.

### For Sale

#### FOR SALE

##### WOODEN TOW BARGE N. C. HOLLAND

187' Keel 32' Beam 11' 2" Depth.  
O. W. Blodgett, Bay City, Mich.

#### STEAMERS FOR SALE

Freight Steamer "Boston"—292.6 x 63 x 20.4  
ft. Gr. Tonnage 3676.

Passenger and Freight Steamer "Georgia"—  
280 x 40 x 15 ft. Gr. Tonnage 1749.

Passenger and Freight Steamer "Tennessee"—  
245 x 38 x 15.8 ft. Gr. Tonnage 1240.

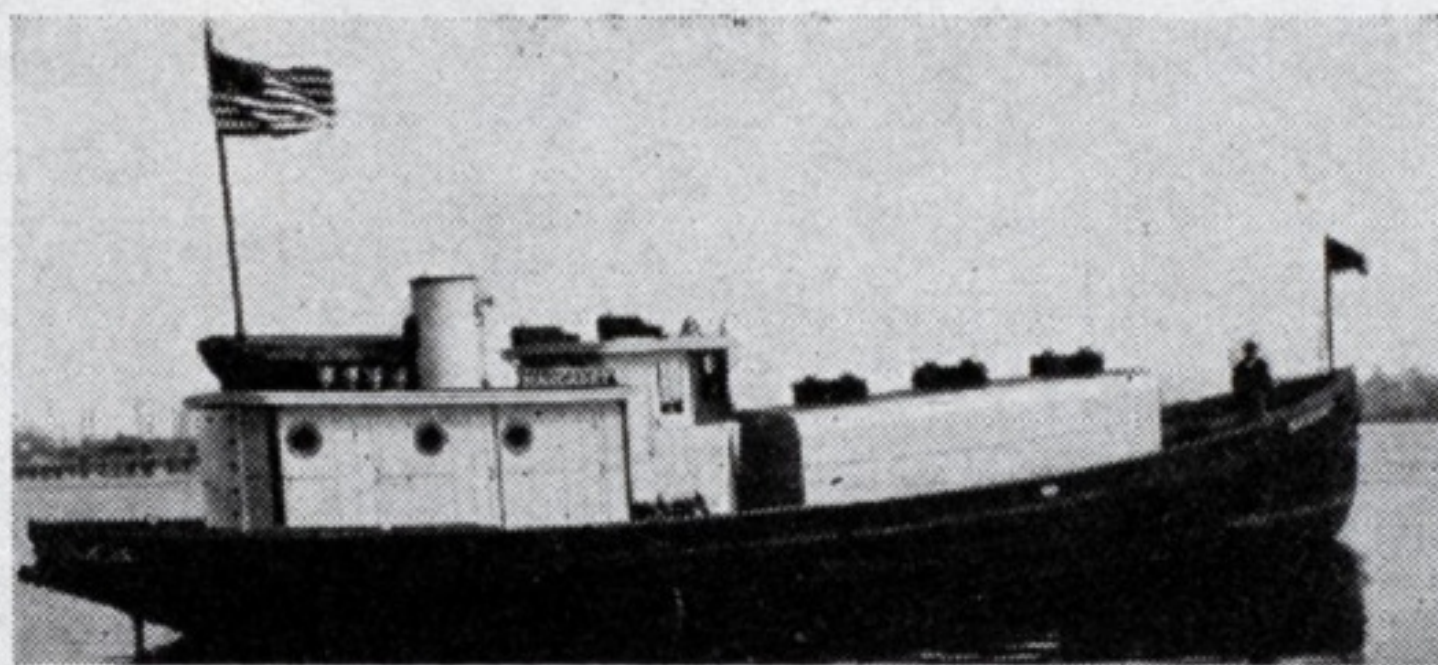
For particulars inquire of C. E. Smith, Vice-  
President, New England Steamship Co., 209 Gen-  
eral Office Bldg., New Haven, Conn., or J. H.  
Lofland, General Manager, Pier 14, North River,  
New York City.

**FOR SALE: SANDSUCKER KEWANEE.** CA-  
pacity 110 yards. Ten inch Morris pump. Fore  
and aft compound engine. Scotch boiler, 150  
lbs. steam. Will sell cheap as we have larger  
boat. Valley Sand Co., Bay City, Mich.

### For Sale

#### FOR SALE—STEEL DUMP BARGE

Sealed Bids will be received up to 10 A. M., July  
15, 1931 and then opened for the sale of Steel  
Dump Barge—90 x 30 x 10 Ft. at Hopper Ends.  
Full information on application. Address City  
Engineer, Miami Beach, Florida.



**FOR SALE: JUST COMPLETED OIL TANK**  
delivery boat Margaret, 24,500 gal. capacity, six  
compartments driven by 100 H.P. Fairbanks  
Morse Semi Diesel Engine. If interested write  
E. L. Taylor, 2712 Chesterfield Blvd., Norfolk,  
Va.

### For Sale

#### FOR SALE

##### WOODEN TOW BARGE PESHTIGO

201' Keel 37' Beam 12' Depth.  
O. W. Blodgett, Bay City, Mich.

#### FOR SALE

##### TUG "JOHN E. MEYER"

Heavy steel hull 108' long, 24' beam 14' draft  
Triple expansion engine 15½, 26, 44 x 26".  
Scotch Marine Boiler 180 pounds working pres-  
sure.

#### SCOW "AMERICA"

Wood hull 180' long, 48' beam, 14' draft.  
1800 Ton capacity—two derricks with 3-yard  
and 2-yard clamshell buckets.  
Both tug and scow in excellent operating condi-  
tion.

For further details write

THE BARNETT & RECORD COMPANY  
418 Lyceum Building  
Duluth, Minnesota



## FOR SALE

### American Steam Screw Tug Outagamie

Built in 1920, the Outagamie is a modern, power-  
ful tug, generating 900 horse-power. It is of steel  
construction, has one deck, and two masts. Its  
gross tonnage is 429; net, 91. Registered length,  
141-5/10 feet, registered breadth, 27-7/10 feet,

registered depth, 14-8/10 feet. Plain head and  
elliptic stern. Triple expansion high pressure  
engine built by Murray Iron Works, Burlington,  
Iowa. Two Scotch boilers, 12 feet long, 11 feet 6  
inches in diameter, built by Engineering & Machine  
Works of Canada.

*Available on Great Lakes. Can be seen at Whiting, Indiana.*

For further details see or write J. F. Hewson, Purchasing Agent, Standard Oil Company  
(Indiana), 910 South Michigan Avenue, Chicago, Illinois.





## HAMBURG-AMERICAN LINE

**Passenger Services:** New York to Cherbourg, Southampton and Hamburg. New York to Galway, Cobh (Queenstown). Cherbourg and Hamburg. North Pacific Ports to Hamburg. Bremen and Antwerp via Panama Canal.

**Pleasure Cruises:** Around the world, to the West Indies, to Northern Wonderlands.

**Freight Services:** New York to Hamburg (8 days). Boston, Philadelphia, Baltimore and Norfolk to Bremen and Hamburg.

North Pacific Ports direct to Hamburg, Bremen and Antwerp.

**HAMBURG-AMERICAN LINE**

39 Broadway

New York

## LANE LIFEBOATS

WERE SUPPLIED TO THE

## BYRD ANTARCTIC EXPEDITION

**C. M. Lane Lifeboat Co., Inc.**  
Brooklyn, N. Y.



# SHIPMATE

## FUEL OIL BURNING RANGES

The smallest SHIPMATE which can be supplied for operation on 28 gravity fuel oil is a four hole range having top 29" wide by 26½" deep; the largest is over five feet long. There are six models between these two extremes.

Thus is the convenience and safety of this type of cooking appliance, heretofore limited to relatively large vessels, made available to every diesel powered craft.

A SHIPMATE OIL BURNING RANGE is equipped with a small power burner which insures clean and efficient combustion and simple, economical operation.

SHIPMATES are made only by  
**THE STAMFORD FOUNDRY COMPANY**  
STAMFORD CONN.

Established 1830

# GRISCOM-RUSSELL



Evaporators—Feed Water Heaters—Extraction Steam Heaters—Generator Air Coolers—Lubricating Oil Coolers—Steam, Air and Oil Separators—Filters—Strainers—Expansion Joints

*Described in bulletins which will be sent on request*

**THE GRISCOM-RUSSELL COMPANY**

285 Madison Avenue, NEW YORK

CHICAGO: 20 North Wacker Drive

## Edward P. Farley & Co.

Incorporated

Steamship Owners, Agents and Brokers

11 Broadway—New York



## ANDREW J. MORSE & SON, Inc.

221 High Street

BOSTON, MASS.

Established 1837

Diving Apparatus and Submarine Armor

Fire Protection Equipment

The Invincible Nozzle

Catalogues on request

John J. Boland

Adam E. Cornelius

## BOLAND & CORNELIUS

VESSEL OWNERS AND BROKERS

Marine Insurance Agents

Marine Trust Building BUFFALO, N. Y.

## Kelvin & Wilfrid O. White Co.

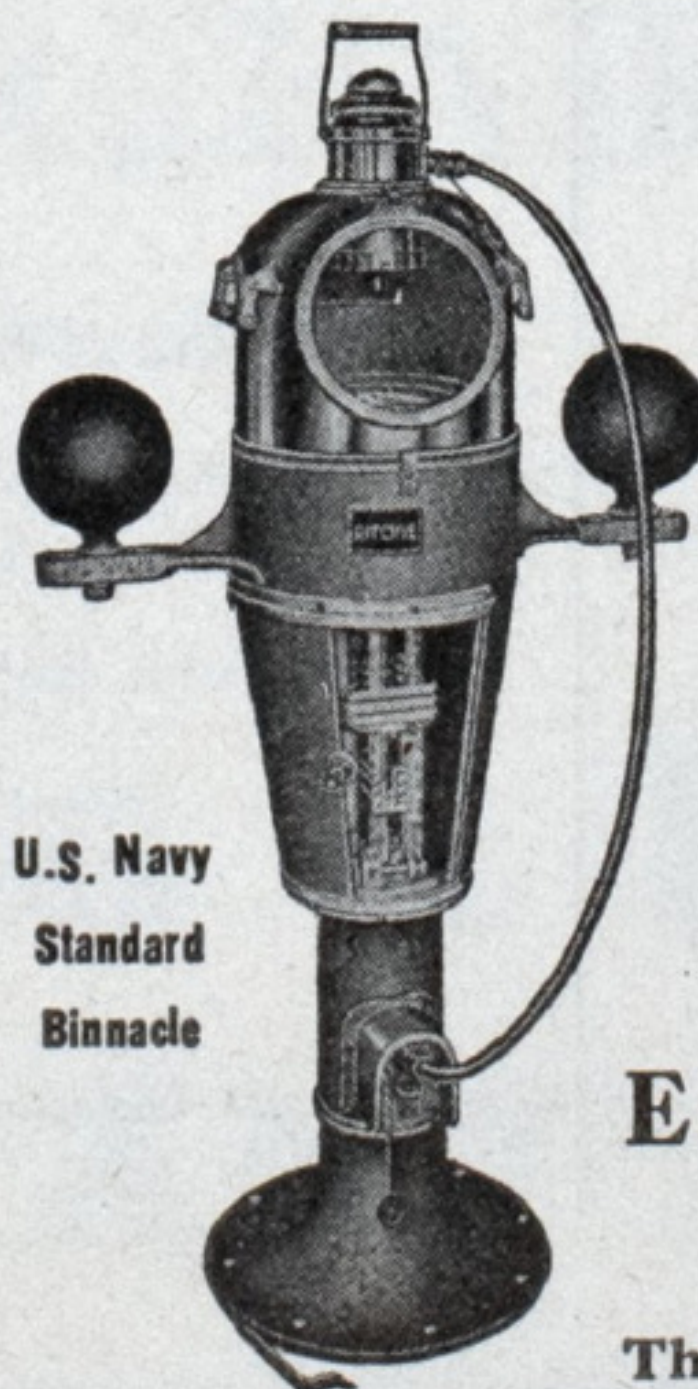
112 State Street, Boston

*Ship Compasses*

*Navigational Equipment*

*Contracts a Specialty*

New York and Montreal



U.S. Navy  
Standard  
Binnacle

## THE RITCHIE LIQUID COMPASS

The Standard Liquid Compass the world over.

Used Exclusively in U. S. Navy for over 40 years.

Over 65,000 on Merchant Vessels in all parts of the world.

Made in all sizes 2 to 12" dia.

Magnets for adjusting Purposes.

## E. S. RITCHIE & SONS

Brookline, Mass., U. S. A.

*Agents for the Great Lakes,*

The Upson-Walton Company, Cleveland, Ohio

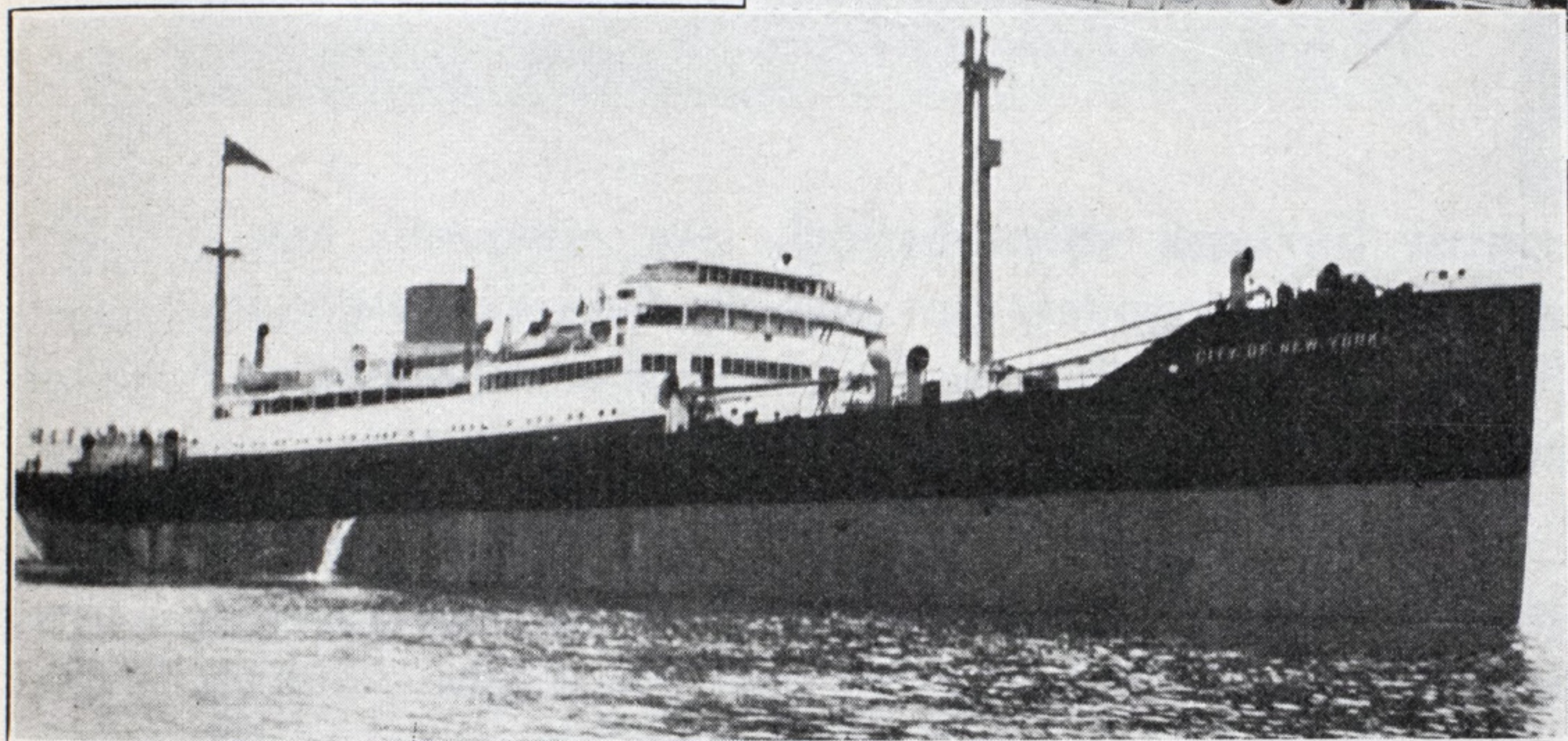
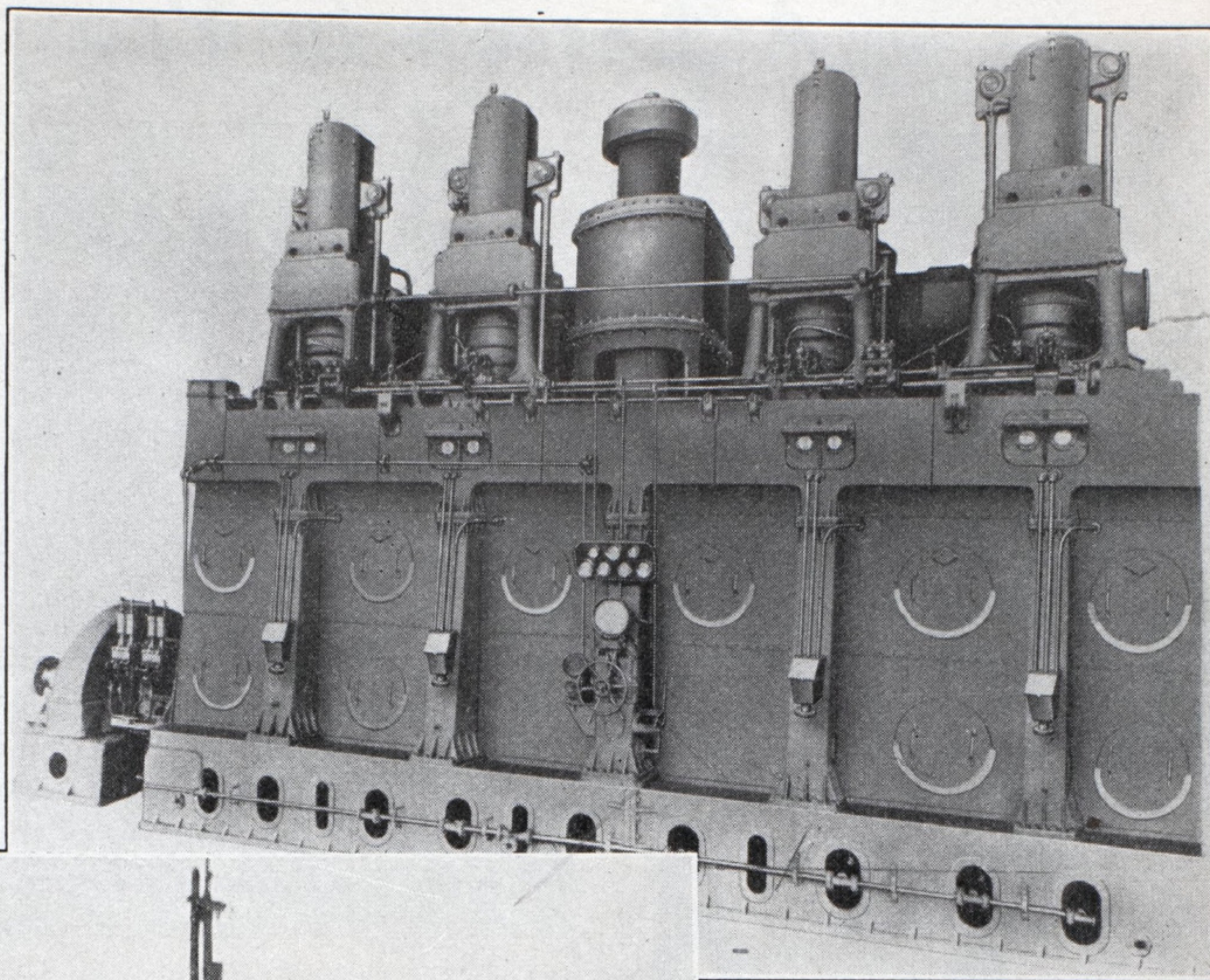


MARINE REVIEW—August, 1931



# Power with Efficiency

SUN-  
DOXFORD  
Opposed-  
Piston  
DIESEL  
ENGINES



*Many American Vessels  
are now equipped with  
American Built Sun-  
Doxford Diesel Engines  
built in the Sun Plant.*

*Builders of*

## Passenger and Cargo Vessels—Oil Tankers

*Unlimited facilities for*

### MARINE REPAIRS

*Two floating Dry Docks*

*11,000 Tons Lifting Capacity Each*



# SUN SHIPBUILDING & DRY DOCK COMPANY

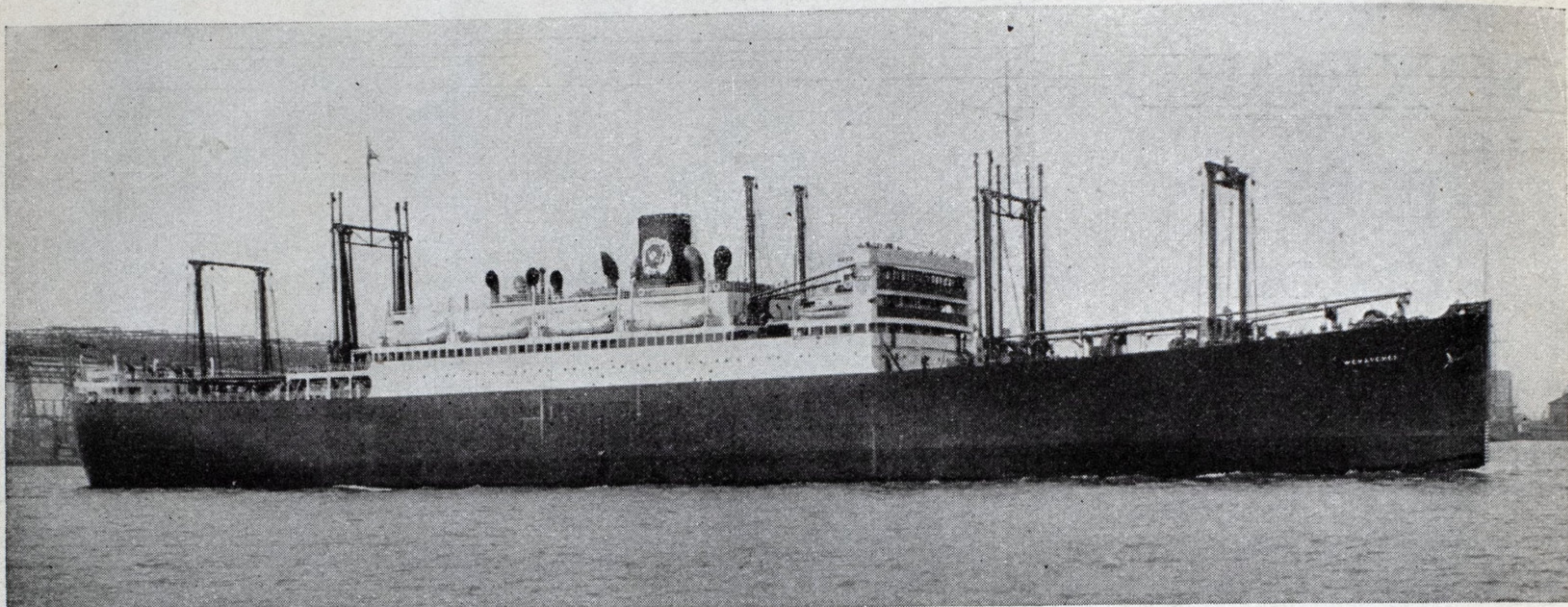
Shipyard & Main Office  
CHESTER, PA.

25 Broadway  
NEW YORK



# The **A, B, C** of an American Merchant Marine

## *A Lesson in Prosperity*



American Mail Line Passenger-Cargo Ship "President Jefferson" (ex-"Wenatchee")  
Built by New York Shipbuilding Company

**A**mericans must become shipminded. An adequate merchant marine is vitally important not only to American prestige and to American security but to the expansion of American foreign trade.

**B**uild American ships in American shipyards. Eighty percent of the cost of a ship in this country goes for wages. Nearly every State in the Union contributes something in the way of materials or equipment and almost every industry will furnish either one or the other.

**C**arry a substantial part of America's foreign commerce in American ships. Over eighty-three percent of your freight bill or passage money, when paid to an American shipping line, is spent in the United States.

Put these precepts into practice and you will put sound money in circulation in a most wholesome and continuing way—and this is the basis of prosperity.

## NEW YORK SHIPBUILDING COMPANY

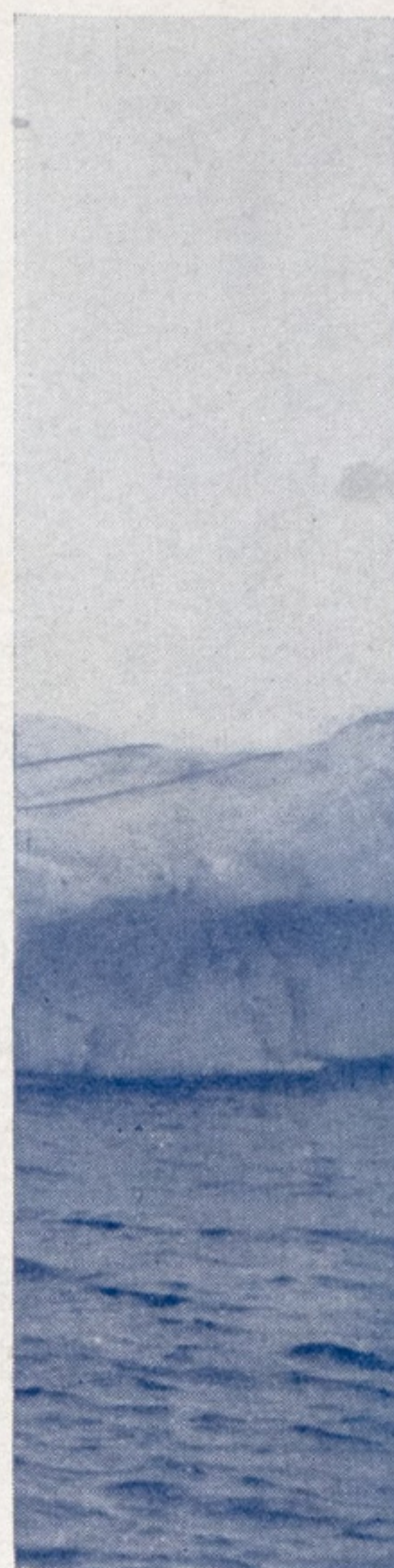
Main Office and Works:  
Camden, N. J.

New York Office:  
420 Lexington Ave.





**WATERPROOFED**

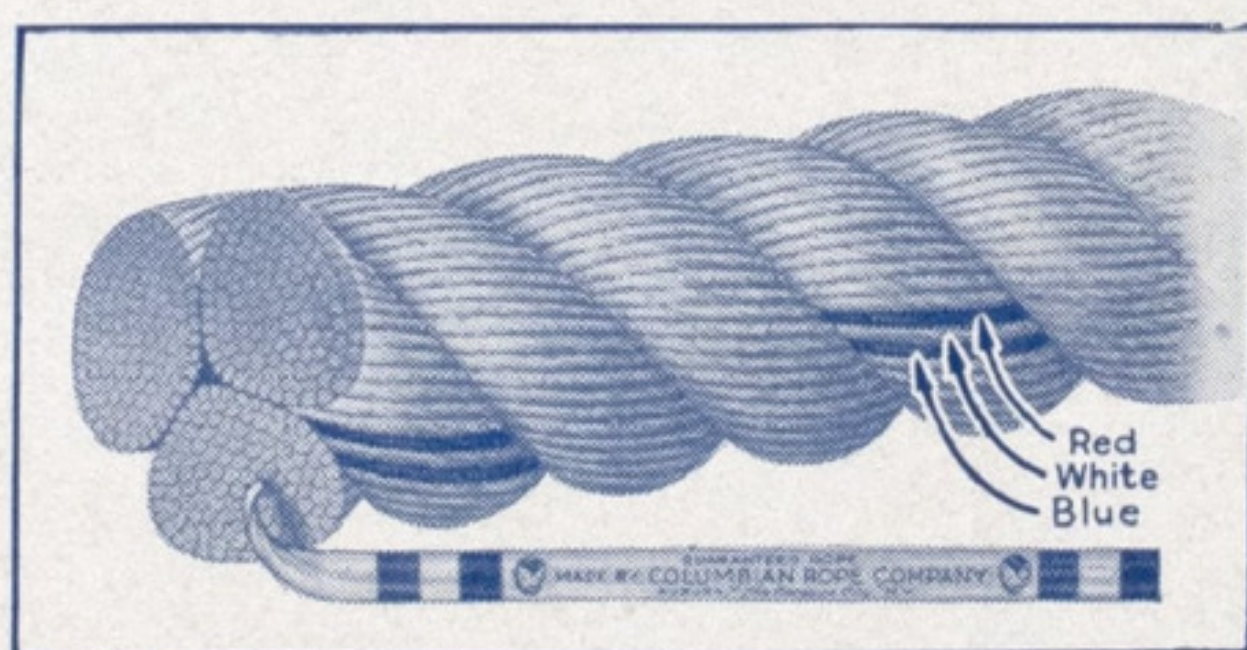


How would you like to use a rope that is guaranteed to give service under conditions like this? Imagine tying a 120 ton schooner to an iceberg of sharp, slippery ice. With ice under her stern and bow and a rocky ledge a few feet inshore, it was no place for her moorings to break.

Would you recommend the rope you are using for such an emergency? If it is *Columbian Tape-Marked*, you would, without hesitation. *Columbian* possesses that extra strength and durability needed in a crisis. It is also waterproofed and will there-

fore handle easily under these unusually trying and destructive conditions.

Capt. Bob Bartlett, famous explorer, uses *Columbian* exclusively. He often depends upon *Columbian* to save his ship in some perilous situation, like the one cited, and it has never failed.



*Always look for the red, white and blue surface markers in all *Columbian*  $\frac{3}{4}$  inches in diameter and larger.*

No matter where you explore, you won't find a rope that equals the guaranteed, waterproofed *Columbian Tape-Marked*. A *Columbian* distributor, whose name and address will be gladly supplied upon request, is located near you. Write us for it.

### **Columbian Rope Company**

332-90 Genesee Street

Auburn, "The Cordage City," N. Y.

Branches:—

New York

Chicago

Boston

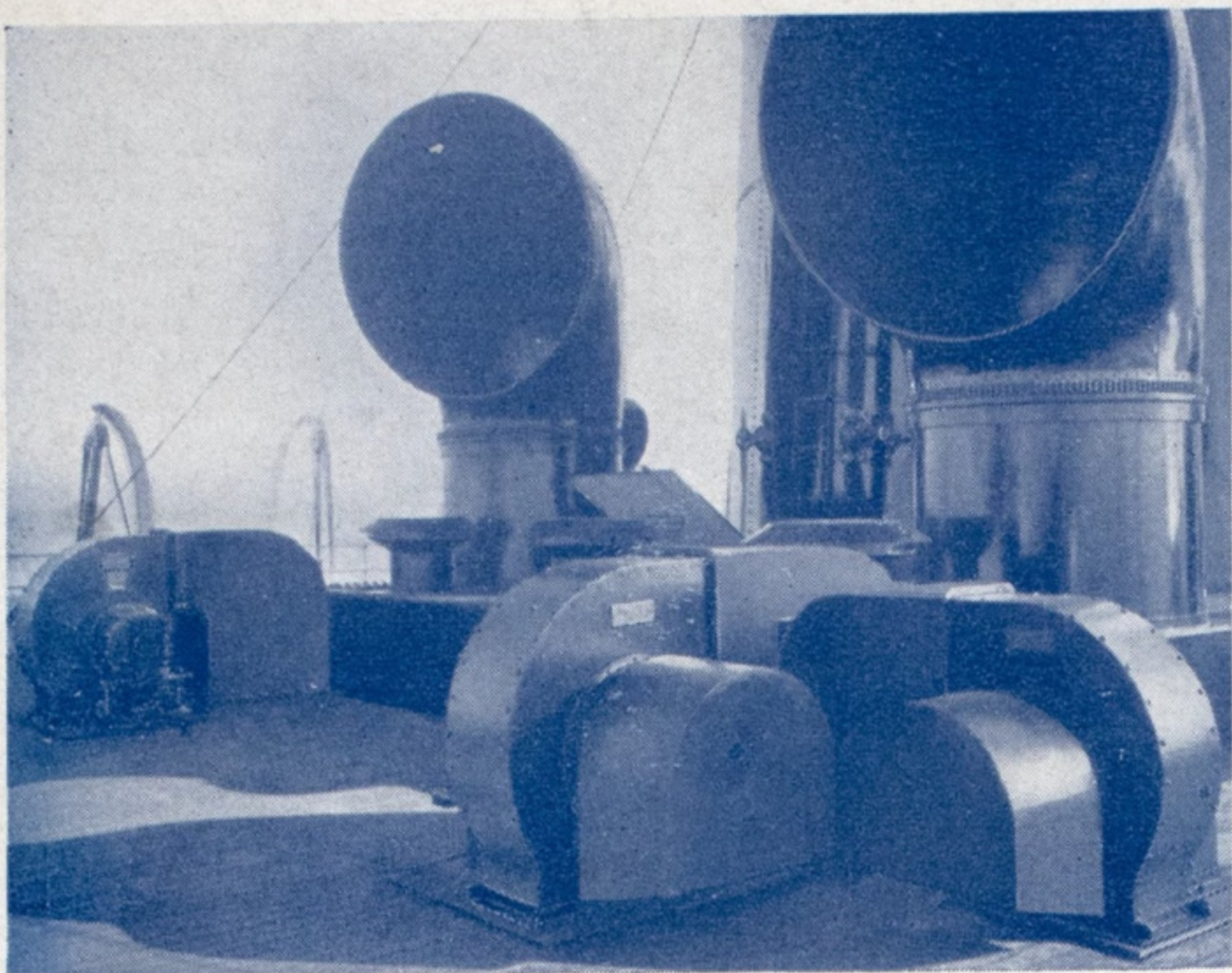
New Orleans

Philadelphia

# **COLUMBIAN TAPE MARKED ROPE** **PURE MANILA**

H-3





## They can't help it

If the crew on your vessel hasn't adequate ventilation of its quarters, you can't expect that they will do their best when they are on duty. They can't help it if they feel groggy. If their sleep is disturbed and they do not get the proper amount of rest, naturally they will not feel up to par.

A Sturtevant ventilating system will keep the crews quarters as well as the rest of your ship supplied with clean, invigorating air.

Why not investigate the possibilities of a Sturtevant Ventilating system? It won't cost you a cent, and may mean money in your pocket.



**B. F. STURTEVANT COMPANY, HYDE PARK, BOSTON, MASS.**

*Sales Engineering Offices in Principal Cities*

# Sturtevant

(REG. U. S. PAT. OFF.)

## Marine Equipment

Heating and Ventilating  
Equipment—

Mechanical Draft Equipment—  
Turbines—Motors—Blowers—

Ventilating Sets—Heaters—  
Generating Sets—Exhausters

Gasoline and  
Steam Engines

If You Want The Best Specify

# Hyde

S. S. "A. F. HARVEY" owned by Pittsburgh Steamship Co. and built by Great Lakes Engineering Works.

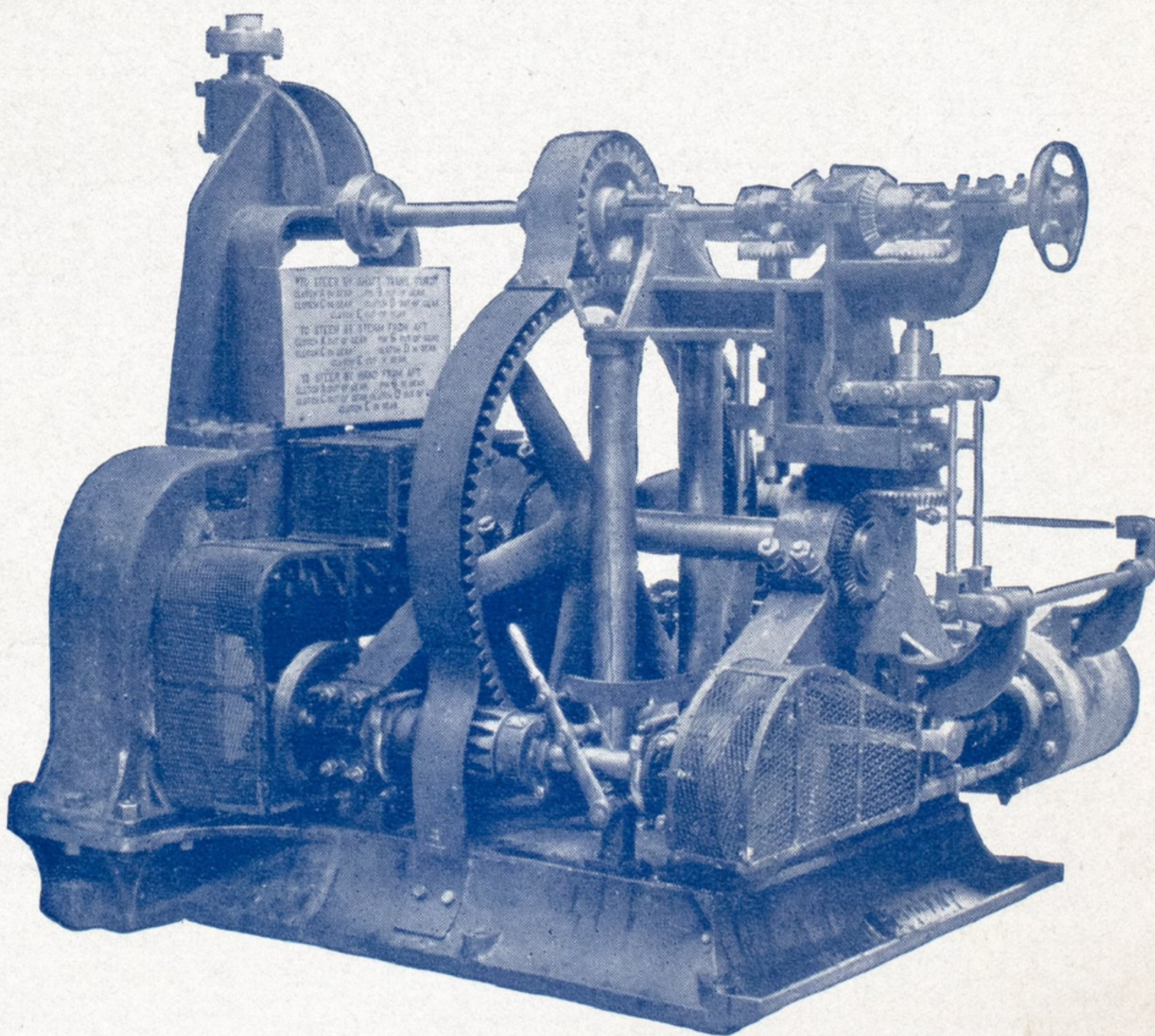
S. S. "B. F. AFFLECK" owned by Pittsburgh Steamship Co. and built by Toledo Shipbuilding Co.

S. S. "S. T. Crapo" owned by Huron Transportation Co. and built by Great Lakes Engineering Works.

These three fine new boats  
are all equipped with

# Hyde

Quadrant Type  
Steering Gear  
Spur Gear Windlass  
Mooring Winches  
Hatch Winches



*HYDE Quadrant Type Steering Gear*

# Hyde

# Windlass

# Company

## Bath, Maine